

# HANDBOOK ON SHOTGUN SHOOTING

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# HANDBOOK

*on*

# SHOTGUN SHOOTING

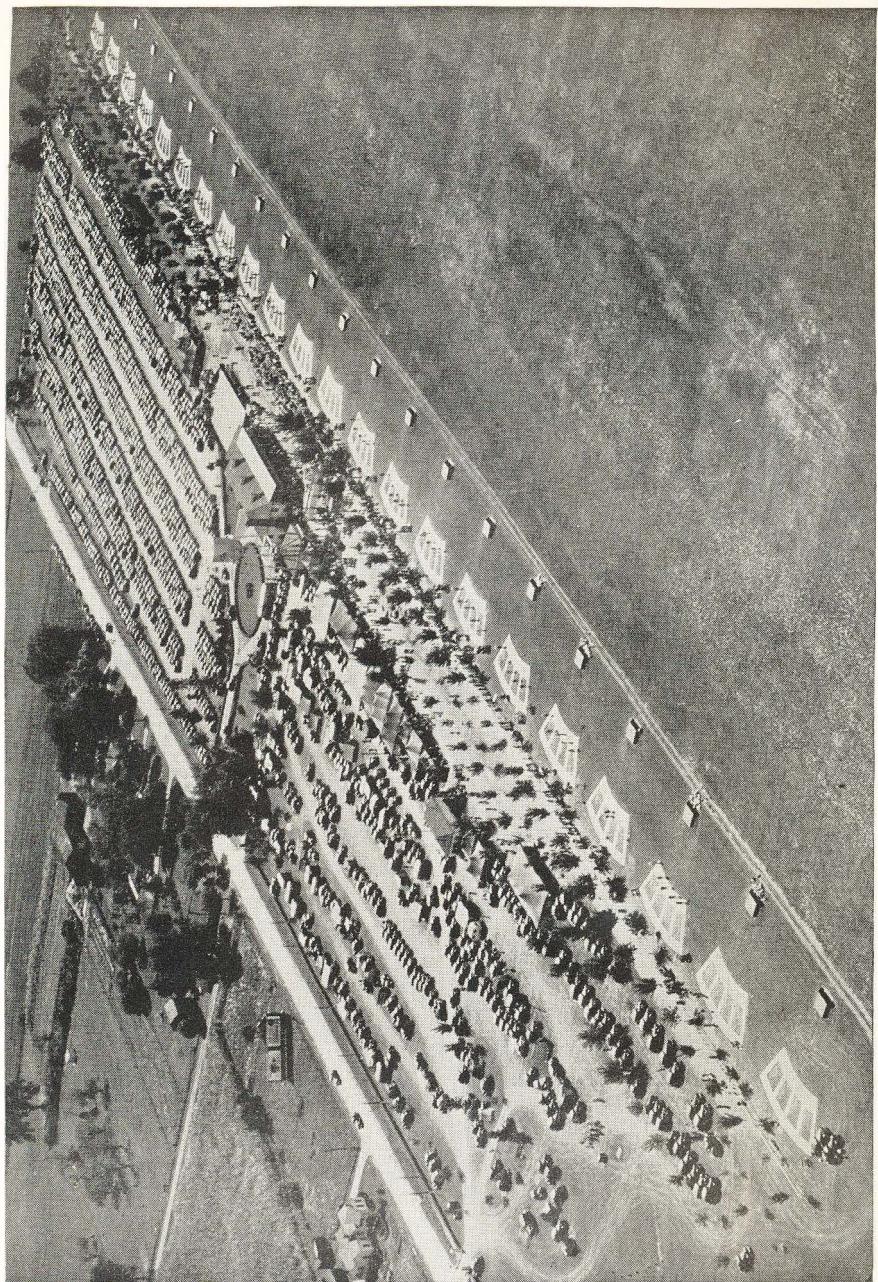


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(Index on Page 100)

ENGINEERING YOUR SHOOTING • APPLYING  
YOUR KNOWLEDGE • CLAY TARGET  
SHOOTING • GAME SHOOTING

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This aerial photograph of the Amateur Trapshooting Association's grounds at Vandalia, Ohio, illustrates the highest development of organized shooting sport in America today. The picture was taken during the shooting of the Grand American Handicap itself, and the hundreds of participants, the thousands of spectators, and the solid masses of parked automobiles are plainly visible. The A. T. A. grounds constitute the only permanent home of a nationally organized sport which is owned and maintained as a location for an annual sporting classic of the first magnitude.

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## FOR E W O R D



**I**F MAN'S favorite sport since the beginning of time has been the hurling of missiles at a target, then indeed the hitting of *moving* targets represents the pinnacle of the most engrossing and enjoyable pastime on earth.

To 14 million Americans, the hitting of moving targets presupposes the use of a shotgun. The fowling piece became an American institution with the landing of the pilgrims at Plymouth and Jamestown. All the traditions of the ensuing centuries are embodied in the love of the modern American sportsman for his gun—and the healthful, zestful things his gun represents.

It is not to be supposed, however, that modern gunning conditions are the same as those encountered by our forefathers. Civilization has encroached upon the habitat of our wild game until, in many sections of the country, the problem of an adequate game supply has become one of restoration, rather than conservation. Even in regions where game is seemingly abundant, bag limits have been progressively restricted in order to insure shooting sport for future generations through maintenance of an adequate breeding stock of game birds and animals upon the land.

As a result of this decrease in the game supply in most sections of the country, it is no longer possible to place a light shotgun in the hands of a lad of school age, and expect that youth to go out into the fields and marshes and teach himself to shoot. The living targets which provided so much practice for our forefathers simply do not exist in sufficient numbers to develop skill in gun-pointing on the part of the field-trained shooter.

Similarly, hunting seasons are so short that no devotee of the shotgun can afford to go into the field from year to year without some sort of tuning-up process between hunting seasons. A certain degree of basic skill stays with a shooter, just as in swimming, or tennis, or golf. But it takes practice to maintain proper co-ordination in any of these sports if the participant wishes to retain the highest efficiency of which he is capable.

Fortunately for the modern shooter—either the beginner, or the veteran in need of practice—*flying* targets are available today which were virtually unknown in the days when our grandfathers were developing their skill by shooting the passenger pigeon, the prairie chicken, and the various species of wildfowl. Today, no shotgun shooter is farther away from practice at his favorite sport than the nearest trap or skeet club. If there is no club available, a portable fixed-base trap for throwing clay targets, or even that remarkable device called a hand trap, will provide either practice or enjoyable sport anywhere that a shotgun can be fired with safety.

As a matter of fact, shooting at clay targets will develop shooting skill to a higher degree than the same number of shotgun shells expended on game. Any

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difficult shot, such as a high outgoer or incomer, can be repeated at will with modern clay target traps, until the shooter learns to hit that particular "bird". It might take years under present conditions for a shooter to have the opportunity to learn to hit ducks in pass shooting where the game wings swiftly overhead. With an elevated trap, such as the installation for tower shooting, described in the chapter "Single-Trap Gun Games", the fine art of pass shooting can be mastered in a single afternoon.

When it comes to competitive shooting with one's friends, there is more real sport in a modern shotgun shooting match than our grandfathers, with their inferior arms, ammunition and target-throwing equipment, ever were able to enjoy. Not only the standard competitive gun games, like trap and skeet, are described in this booklet, but in addition full descriptions are given of the newer mechanical installations suitable for country places, shooting clubs and other convenient places where the modern shooter can go pleasantly about the process of improving his shooting skill.

This booklet is intended to assist all those American sportsmen, young and old, who view the sport of wing shooting from the modern standpoint. It is, frankly, more technical in its approach to the problem of becoming a good shot than most other textbooks on the subject. It purports to stress fundamentals, and to minimize those subjects where practical results can be obtained through one of several methods. It places a premium upon the analytical ability of the reader—in short, it is designed to make the shooter *think*.

Yet, although this booklet is more technical in its approach to the problem of becoming a good shot, technical treatment of the subjects in the text has been brought in line with the physical limitations of the shooter and his firearm. While in many cases exact "forward allowances" are given as examples, it is not to be assumed that any human being can approach mechanical perfection in the pointing of a shotgun. None of the great competitive shooters of our generation claims to possess that sort of mechanical perfection which calls for the leading of a target by four feet, and then insures the manipulation of the shotgun to bring about this exact result. Accordingly, all technical instruction is based upon normal mental and physical processes which are capable of execution by the average person, with virtual certainty that the required physical and mental processes can and will be executed in accordance with the suggestions in this manual.

It follows from the foregoing that *thinking through* the problem in hand is just as important as *following through* with the gun swing in the act of shooting.

In fact, it may be said in all truth that no person's shooting will be any better than his thinking, even with the assistance of this manual or any other textbook ever written on the subject.

Committee on Promotional Activities  
Sporting Arms and Ammunition  
Manufacturers' Institute

# CHAPTER I

## Engineering Your Shooting

### PART I—THE SNAP SHOT

**S**HOTGUN shooting is a sport of controlled relaxation, remarkably like golf in its mental and physical requirements.

It is not necessary to be a mental or physical giant in order to shoot well. You need merely to exercise normal control over both mind and body in order to master the fundamentals of wing shooting.

Like golf, wing shooting demands co-ordination of feet, legs, hips, shoulders, arms, hands, head and eyes, all to the end of doing one specific thing with a mechanical appliance at a definite split-second of time.

It has been proved that a good instructor can make an excellent "business man golfer" out of any normal individual who is willing to engineer his golf—who will devote the necessary thought to the mastery of the fundamentals of golf, and thereafter apply a reasonable expenditure of time and energy toward continued improvement in the mechanics of the game.

The same thing may be accomplished in wing shooting with the shotgun. The proper way to begin is with pencil and paper. By means of simple diagrams, ordinary shooting situations can be dramatized, with each mental and physical process definitely assigned to its proper place in the continuity. Proceeding in this manner, the importance of each step can be evaluated, lost motion eliminated, the number of variables reduced to the minimum—in short, your shooting will be engineered.

There is really nothing new within the pages of this booklet regarding the mechanics of shotgun shooting. The fundamentals of good wing shooting were mastered years ago when muzzle-loading shotguns had been improved to the point of reasonable reliability. Through the past half-century, many excellent works on the art of wing shooting have been circulated widely. Yet, within the current decade, the practice of applying cold analysis to business and personal problems has become so widespread as to be almost universal. The analytical approach to any problem now is regarded as the only proper treatment to insure a satisfactory solution. Hence, the short cut to better shooting presented herein does represent something new in technique. After all, it is somewhat revolutionary to enter upon a shooting career armed only with pencil and paper.

Even the "natural" shooter, endowed with good eyes, a fine physique, and healthy nerves—the kind of chap who steps up and hits 'em with that "Just as easy!" air—may be able to find something helpful in these pages. For example, golf instructors through past centuries consumed untold millions of precious hours in teaching the "follow through". They said it was absolutely essential to good golf. Nowadays, heretical master minds tell us that

the follow through in golf is the effect of proper hitting, not the cause. Similar fallacies bearing upon shooting technique likewise are being dispelled almost every day on some Skeet field, or trapshooting ground. Perhaps in the release of the mind from some minor detail, heretofore considered important, lies that additional fraction of a percentage point in competitive shooting that has separated some shooter from a winning average.

Conversely, perhaps a merely average shooter suddenly will become a star through stumbling upon some point which previously had seemed inconsequential, but which, when properly evaluated, furnished the spark leading to the heights of stellar performance. The ink is scarcely dry upon the record of a young trapshooter who became a star at handicap trapshooting, merely because it occurred to him over night that he might improve his long-range handicap by "pointing them out"!

As a start toward engineering your problem, get a clear picture of the basic mechanics of wing shooting. Reduced to the simplest terms, wing shooting consists of releasing one moving object with the purpose of intercepting in flight another moving object, within the effective range of your shotgun. **Do not**, for the present, concern yourself with further details.

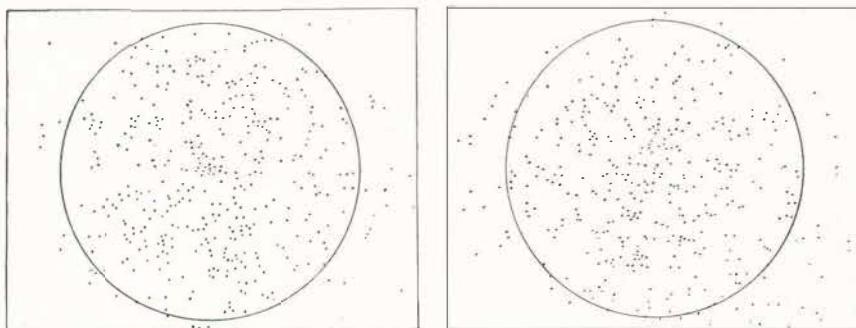


FIG. 1. This figure shows how the boring of a shotgun barrel controls the pattern spread at a given distance from the muzzle of the gun. The pattern on the left was fired with an improved cylinder barrel at 20 yards. The pattern on the right was fired with a full-choke barrel at 40 yards. Without counting the pellets or computing pattern percentages, casual inspection shows that each pattern completely filled a 30-inch circle with no open or blank spots through which a target might escape.

Now visualize the easiest shot possible in wing shooting. Suppose you mounted a cross-bow on the top of your shotgun, attaching the release to the trigger of the gun so that the bow would release a clay target a fraction of a second before the gun fired. The charge from the gun, moving more rapidly than the target, would overtake the mark before the force of gravity had begun to pull down the target from its horizontal flight. The nature of the target and the method of its release remove any and all variables from the shooting problem involved. There just isn't any problem, because there are no variables involved. You could stand up all day, pull the trigger, break the target, and repeat—no variation, no misses, no fun. There is no work for the brain, no job for the eye, nothing for the feet and legs and hips—just a mere routine of the hands and arms, reduced to ridiculous simplicity because there is no possible chance for human error.

ENGINEERING YOUR SHOOTING

Now contrast the simplest possible shot in wing shooting to one supposedly the hardest—and don't forget to do your contrasting with pencil and paper. Suppose you are standing in a field with a gun in your hands. Suddenly a target appears, moving from left to right across your front at a speed of 60 miles an hour or 88 feet per second. The first glimpse of the flying object tells your mind it is going places. You remember your definition of wing shooting, and you want to hit that target by releasing the object which you control—the shot-charge—upon such a line of flight that the target will be intercepted. Lacking an acquired technique—or shooting form—you would have to make certain mental calculations and put into effect certain physical reactions to these calculations. What would you do?

**TABLE SHOWING TIME OF FLIGHT VALUES FOR VARIOUS GAME BIRDS, SHOT SHELL LOADS, AND CLAY TARGETS**

	20 yds. 60 ft.	30 yds. 90 ft.	40 yds. 120 ft.	50 yds. 150 ft.	60 yds. 180 ft.
<b>GAME BIRDS</b>					
Duck @ 95 ft. per second .....	.632	.948	1.262	1.580	1.895
Goose @ 80 ft. per second .....	.750	1.125	1.500	1.880	2.250
Mallard @ 70 ft. per second .....	.857	1.289	1.714	2.143	2.571
Grouse @ 48 ft. per second .....	1.250	1.872	2.50	3.13	3.750
Quail @ 72 ft. per second .....	.834	1.250	1.675	2.085	2.50
<b>SHOT SHELL LOADS</b>					
	Inst. Velocity				Time of Flight in Seconds
12 Gauge					
3 —1½—9C Skeet .....	940 over 25 yds.	.058	.101	.154	.221
3 —1½—8 .....	855 " 40 "	.059	.097	.140	.189
3 —1½—7½ .....	870 " 40 "	.058	.095	.138	.186
Max.—1½—4C .....	1015 " 40 "	.052	.082	.117	.160
Max.—1½—6C .....	975 " 40 "	.053	.086	.123	.166
Max.—1½—7½C .....	940 " 40 "	.054	.087	.129	.175
16 Gauge					
2½—1 —9C Skeet .....	900 over 25 yds.	.062	.106	.160	.229
2¾—1½—8 .....	845 " 40 "	.060	.098	.142	.192
Max.—1½—4C .....	965 " 40 "	.052	.087	.121	.164
Max.—1½—6C .....	925 " 40 "	.053	.089	.129	.172
Max.—1½—7½C .....	890 " 40 "	.055	.090	.135	.182
20 Gauge					
2½—1 —9C Skeet .....	890 over 25 yds.	.064	.109	.164	.233
2½—1 —8 .....	840 " 40 "	.060	.099	.143	.193
Max.—1 oz.—4C .....	940 " 40 "	.052	.089	.127	.172
Max.—1 oz.—6C .....	900 " 40 "	.054	.092	.133	.178
Max.—1 oz.—7½C .....	865 " 40 "	.057	.094	.138	.188
(Skeet velocities are for cylinder bore guns over 25 yards. All other velocities are over 40 yards in full choke guns.)					
<b>CLAY TARGETS</b>					
	Distance of Clay Bird from Trap		Velocity in Foot Seconds	Time of Flight in Seconds	
Slow Bird—35 Yards .....	at 0 yards		70	0.0	
	" 20 "		34	1.3	
	" 25 "		30	1.8	
	" 30 "		28	2.3	
	" 34 "		26	2.8	
Regulation Clay Bird—50 Yards	" 0 "		85	0.0	
	" 20 "		47	1.0	
	" 25 "		43	1.3	
	" 30 "		40	1.7	
	" 50 "		31	3.4	
Fast Bird—56 Yards .....	" 0 "		96	0.0	
	" 20 "		52	0.9	
	" 25 "		47	1.2	
	" 30 "		43	1.5	
	" 50 "		35	3.1	
	" 56 "		34	3.6	

FIG. 2

## HANDBOOK ON SHOTGUN SHOOTING

First, you would estimate the distance from your position to the approximate line of flight of the target—say 20 yards as about comparable to the mid-field shots at Skeet. Your reason would tell you that in order to direct the shot-charge at some point far enough ahead to intercept the target, you would have to face in that direction. You shift your feet so as to be able to point the gun.

Second, having shifted your feet, you would point your gun—or “mount” it, if you prefer to be technically correct. You are careful to see that the gun is pointing at the exact spot you have selected for the coincidence of the line of flight of the two moving objects.

Third, you would pull the trigger, releasing the shot-charge.

Fourth, you would hold your position, looking intently at that mathe-

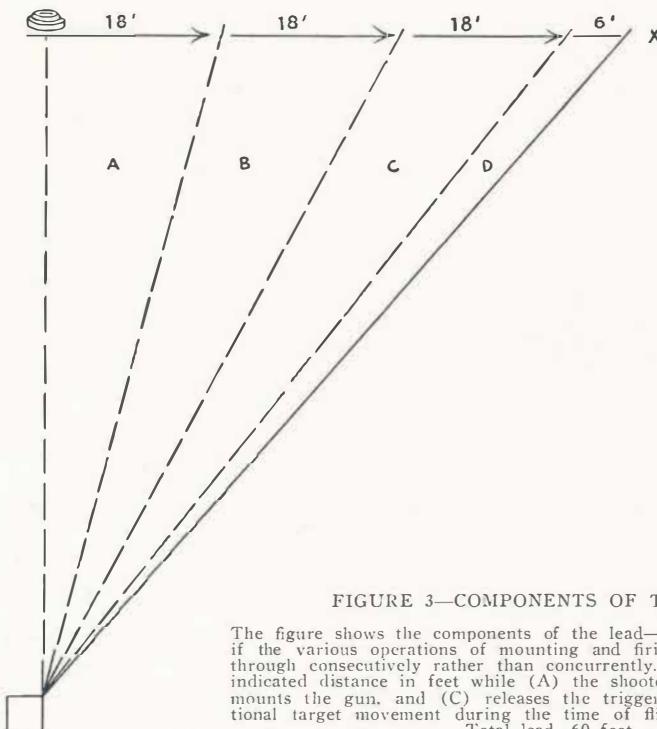


FIGURE 3—COMPONENTS OF THE LEAD

The figure shows the components of the lead—or forward allowance—if the various operations of mounting and firing the gun are carried through consecutively rather than concurrently. The target moves the indicated distance in feet while (A) the shooter faces the target, (B) mounts the gun, and (C) releases the trigger. (D) represents additional target movement during the time of flight of the shot-charge. Total lead, 60 feet.

matical crossing point in mid-air, waiting to see the target crash into bits upon impact with the shot-charge.

Now, having thought out what you would have to do to put the charge on the target by mere mathematics, take your pencil and draw a diagram like Figure 3. Sketch by successive steps just what the target was doing while you were getting all set to end its meteoric flight.

First—corresponding to your initial movement in facing the direction of fire—you compute by mathematics that the target was moving approxi-

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mately 18 feet while you were getting set. You remember from some former personal efficiency test that it requires approximately one-fifth of a second in reaction time to do most of the things we try to do in the biggest hurry. Mark a section 18 feet long in the path of the target in the direction of its flight, which is how far the target will move in one-fifth second.

Next, mark off another section 18 feet long, adjoining the first section, representing the distance the target moved while you were pointing the gun.

Again, mark off a third section 18 feet long, adjoining the second section you have just sketched in, to represent the distance the target moved while you were pressing the trigger. As you mark with your pencil, you will have the consolation of knowing you are right in this calculation, because repeated tests with an electrical timer have demonstrated the average reaction time of shooters—the “lag” between the willing of the shot and the actual release of the trigger—to be approximately one-fifth second. Actually, the time ranges between .16 and .25 second for normal persons of all ages.

Finally, you compute that the shot-charge will require approximately one-fifteenth second to reach the crossing point with the path of the target. You make this calculation on the basis of an average shot-charge velocity of 900 feet per second over your original estimated range of 20 yards. In this period of time, the target has moved up approximately 6 feet to the crossing point.

Now—and here is where you laugh—add up the four figures representing the travel of the target while you were doing the things necessary to put the shot-charge in the proper place to intercept it.

You will find the target has moved a total distance of 60 feet—and then you realize you couldn’t hit the darned thing, after all. The target moved as far along its path as your original estimate of the range. It would be impossible, you reason, to pick out a spot in the air 60 feet ahead of a rapidly moving object at such close range—or any other range, for that matter. You actually would have to turn your back to the target while you were getting in position. Unless you were blessed with eyes in the back of your head, you couldn’t see the target and the point of aim at the same time.

Yet, a shooting problem such as this is being solved correctly thousands of times every day in the year. You have only to go out to some Skeet field and watch the boys break the high-house target from Number 5 position to know that it can be done, and is being done right along. If they can do it, so can you.

With your diagram before you, check each mental impulse and its corresponding physical reaction in the entire sequence represented on your chart. You find that the target was sailing merrily along for a distance of 54 feet while you were willing and accomplishing three specific actions necessary to discharge the gun along a definite line of sight. The target moved 6 feet more while the shot was getting out where the target was supposed to be.

It occurs to you right here that time of flight of the shot-charge is one factor you can’t do anything about. Arms and ammunition manufacturers have done their best, but until it is possible to load a shotgun with light rays capable of disintegrating a target, there will always be a time-of-flight factor to be reckoned with. The 6 feet the target moves while the shot-

charge is getting out to it must stay in the diagram, at least for the present.

But what can you do about the mental impulses and physical reactions within your own control, to cut down that ridiculous forward allowance of 60 feet, and at least permit you to see the target and the calculated aiming point at the same time? Examine your diagram from left to right, checking the various components of the forward allowance represented by the separate sections.

First, you have the distance the target moved while you were shifting your feet to face the aiming point. What can you do about that?

Simply eliminate it by facing the aiming point before it is necessary to aim at all.

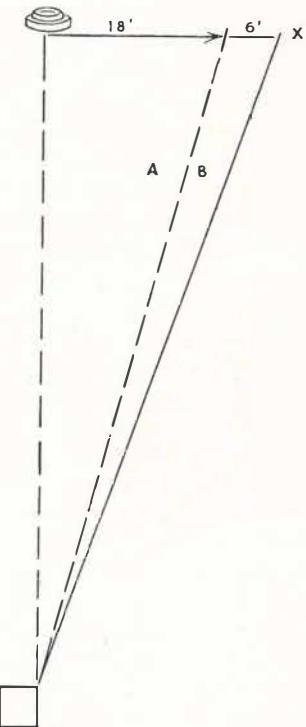


FIGURE 4—SNAP SHOOTING

In snap shooting—aiming and firing the gun at a point in advance of the target without swinging the gun in the direction of target movement—the correct lead is 24 feet if the operations of mounting the gun and releasing the trigger are performed concurrently. (A) represents target movement during the combined mounting and trigger time. (B) represents target movement during the time of flight of the shot-charge.

willed the movements of drawing and firing as separate impulses, their minds couldn't work fast enough to bring about the actual result in the required time.

You can take our word for it that in Skeet, in trap shooting, and all the other clay target games, it is not only possible but ABSOLUTELY NECESSARY to place the feet in the proper position before the target is trapped. Secure in this knowledge, cross out the 18 feet representing target travel while you were getting set. Then on to the next operation.

The target moved another 18 feet while you were mounting your gun. Here you have a different type of problem, not only from the mechanical standpoint, but according to the rules of the various shooting games. In Skeet and field shooting, you will have your gun down, with the stock below your forearm. In trapshooting, it will be up—in the mounted position. But assuming you go into action with your gun down, what can you do about that 18 feet of target travel while you are pointing the gun?

There doesn't seem to be anything you can do about it until you consider the act of pointing the gun in connection with the next and most important step in the sequence—pressing the trigger. . . .

Why not combine the two mental processes into a decision *to shoot*, rather than make a decision to point the gun, followed by a second decision to press the trigger?

Sounds complicated at first, but it isn't. You may have read somewhere that experts with the revolver can draw from a holster and deliver an aimed shot in one-fifth of a second. Your reason tells you that if they

Common sense thus dictates that these hand-gun artists must combine the two mental processes into one. If they can do this, you can, simply and easily. In any type of shooting with your gun in the down position, you must learn to hold it at the ready *always*, and mount it only when you have determined to shoot. This trains your mind in willing the shot as a single impulse.

When you can do that—and you have our word for it that you can, within reasonable limitations—you have cut down the forward allowance necessary to hit that same target to a mere 24 feet. You have done something else—

You have worked out for yourself the most difficult of all shotgun-pointing technique—the so-called snap shot.

Snap shooting is the approved method of bagging fast-flying upland game where rapid gun-handling follows the unexpected appearance of a target. You were asked to analyze snap shooting first because it affords a proper introduction to all the mental and physical variables commonly present in gun-handling.

At some later day, if a friend standing behind you at Skeet tells you that "You stopped your gun!", you'll know that the target sailed on its way untouched because you made a second separate operation of pulling the trigger, thus permitting the target to move an additional 18 feet you had not figured in your lead.

Or, if the same kind friend tells you that "You popped at that one!", you'll know that you mounted your gun as a separate operation after your eye had determined a line of aim, again permitting the target to get 18 feet of jump on you.

So endeth the first lesson. Yet you have not done a thorough job of analyzing shotgun shooting—even with pencil and paper—if you stop here.

## PART II—POINTING OUT

No thinking person who has started in to whittle down a theoretical lead of 60 feet is going to be content with a reduction to 24 feet. You can see much daylight through an orifice 24 feet wide only 60 feet away. You realize it must be something of a feat to place an approximate 24-inch or 2-foot circle, representing the approximate diameter of the shot pattern at 20 yards, on the target in exactly the right place, if you have to deal in forward allowances equivalent to one-third or more of the actual range. So you begin to look about for a method of further reducing forward allowance, and you find it in "pointing out".

You feel that if you can reduce your forward allowance to the mere time of flight of the shot-charge, you can hit more consistently. You are now on the high road to becoming a pointer-outer of the first degree. You can do the trick merely by adding one more impulse to that mental command to fire which is already controlling two other physical reactions. Here's what you must do:

Mount the gun to your shoulder.

Press the trigger to release the shot-charge.

Swing the gun muzzle in a horizontal arc, at exactly the same apparent speed as the movement of the target, and maintaining a forward allowance in advance of the target which you have mentally calculated to be equal to the forward movement of the target during the time of flight of the shot-charge.

If this sounds a bit complicated, just remember that a single mental process controls the three physical reactions required to produce a definite result. Once having received the go-ahead signal from the brain, every member of the body concerned in the business of pointing and discharging the gun becomes automatically subservient to the eye. In effect, the brain tells the eye:

"Get that gun muzzle out ahead of the target, and keep it there until the charge lets go!"

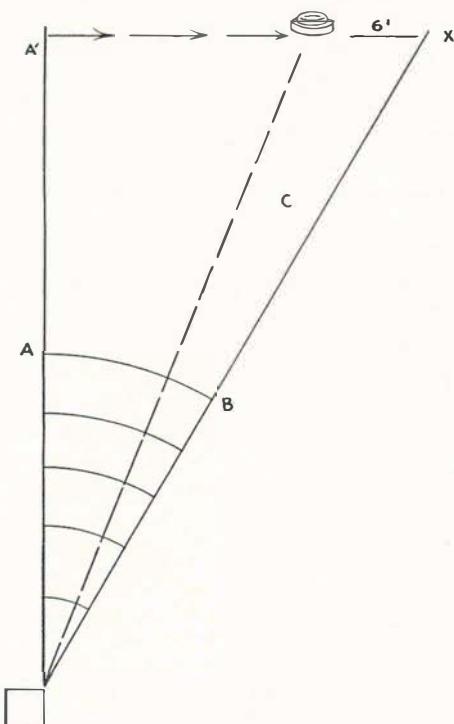


FIGURE 5—POINTING OUT

In pointing out the target, the eye picks up the target along the line A-A'. The gun swings through the arc A-B at exactly the same apparent speed as the target, maintaining throughout the entire swing the constant forward allowance represented by (C). This forward allowance consists only of the distance the target will move during the time of flight of the shot-charge, all other factors being eliminated by the swinging motion of the gun.

form to the anticipated path of the target.

Further, the movement can be accomplished at one standard pace or rate

Once having received these general instructions from the brain, the feet, legs, hips, shoulders, arms, hands and head can proceed with their respective jobs *at the same time*, all co-ordinated by the eye.

Now look at a diagram of the "pointing out" system, similar to Figure 5. You know that the target is going to move 18 feet while the gun is being mounted. Therefore, it will be easier to catch up with the target and move the gun the required distance out in front if you begin to swing the gun in the direction of target movement at the very instant you begin to mount it. Merging the two operations of mounting and swinging into one smooth, rhythmic movement will remove any danger of a mental balk or block in changing from one operation to the other.

The ideal swing-and-mount motion will bring the gun muzzle to the line of flight of the target at exactly the proper forward allowance. At this point, the arc described by the gun muzzle levels off slightly to con-

of swing—the same rate of pace as the apparent speed of the target—if the gun is mounted while swinging. Otherwise, the rate of swing would have to be accelerated to catch up with the target and to pass it to the required lead. Then, the speed of the swing would have to be retarded to the exact speed of the target in order to hold the proper lead. It follows that to swing the gun in a prescribed arc at one standard rate or pace will be easier to learn—and infinitely easier to remember—than to attempt to introduce two separate and distinct speeds into the operation. Accordingly, on the basis of your own analysis, you rewrite the three rules for “pointing out”, as follows:

Begin swinging the gun muzzle to the right at exactly the same rate or pace as the apparent speed of the target, AT THE SAME TIME...

Begin mounting the gun without checking or altering the swing in any manner, with the object of bringing the line of sight to the path of the target at the proper forward allowance, NOW...

Initiating the pressure on the trigger, by squeeze, slap or what have you, which will cause the gun to be discharged while in full motion, maintaining its proper forward allowance ahead of the target.

Now that you have progressed from a snap shooter to a pointer-outer, you will realize why the swing's the thing—in shooting as well as in golf. The two sports even have the same name for it—timing. If your golfer is getting his hands into the stroke ahead of his body, his timing is faulty. If the shooter is lagging too much in releasing the trigger, his timing also is off, and he is “riding out” his birds too far. All of this implies that “pointing out” is not an infallible system for producing perfect results. It is merely the next thing to it. No man ever lived who could hit them all. But day in and day out, the system of “pointing out” will produce a better score or a bigger bag than any other. Another inspection of your diagram will show you why this is true.

So far, you have concerned yourself only with one possible shooting situation—a target crossing from left to right directly across your front. On your diagram, without changing the direction of the target, move the point representing your own position to the left and upward, so that the target, instead of crossing in front, moves away diagonally to the right front—a “right quartering” bird.

The same 6-foot line will indicate the movement of the target while the shot is getting out to it—but the line will be shortened to the eye by reason of the changed perspective, or the “obliquity”. If you have drawn your diagram to scale, you will note that the proper forward allowance is reduced by the obliquity to approximately one-half at the shooter's eye.

At the same time, the apparent speed of the target decreases as the obliquity increases. It is a well-known principle of photography that it requires much greater speed in the lens to “stop” moving objects at right angles than when the movement is away from or toward the camera.

Taking your diagram corresponding to Figure 5 as the basis, now use several sheets of transparent paper, one to each supposed shooting position, and plot the lead necessary for various shots at different angles. In every

case, let the 6-foot forward allowance remain constant, drawing a line from each end of this 6-foot section to the proposed new shooting position. The measure of the angle will then be the required lead *at the gun muzzle* to put the charge on the target.

It is not necessary or even advisable to measure the angles in degrees—merely compare the width of the angles at some given distance from the shooting position.

Figure out for yourself why, if the target flying directly across your front requires the full lead of 6 feet, the target quartering away will require only approximately one-half the forward allowance necessary when the line of fire is perpendicular to the line of flight of the target.

Gradually work around to the point where the line of fire and the line of flight of the target coincide—the shooting position from which no forward allowance is necessary. Do *not* start at this point and work around to the position of full forward allowance, because then you will have no tangible value as a basis for your computations.

For all practical purposes, you can develop in your own mind a system of leading targets consisting of a series of tangible values based on unity and fractions thereof—full lead, half-lead, quarter-lead, no lead. Remember that you have the spread of the shot-charge working for you to take care of any minor errors in computing the forward allowance. Usually you can err one-quarter of full-lead in computing the forward allowance and yet the pattern will take care of you.

Always, of course, play safe by estimating leads on the *long* side. The charge of shot from your gun will proceed through the air in an elongated cone, into which the target probably will fly if the lead is too great. However, a lead estimated too short invariably results in a miss. The target has no mathematical chance to fly into the shot-charge because the entire charge will pass behind it.

Work out these probabilities for yourself, still using transparent paper on your Figure 5 diagram. Assign to the shot-charge an arbitrary length of 10 feet, and, if you care to go to that trouble, figure out for yourself how much you can over-estimate your lead and still hit the target. For practical purposes, it is only necessary to know that a lead over-estimated by one-quarter of a full lead usually will hit the target, whereas a lead under-estimated by the same amount may cause the shot-charge to pass behind the target, resulting in a complete miss.

After working over your Figure 5 diagram several times, it will occur to you that you have not yet taken into consideration a lead over or under a target which is not maintaining level flight. Again common sense will come to your rescue in prompting you to lead rising or incoming overhead targets *above*, falling or out-going overhead targets *below*.

How will you know whether a target is rising or falling? Simply by the *apparent direction* of the flight of the target. In succeeding chapters, "How to Shoot Skeet" and "How to Shoot at the Traps", vertical as well as forward allowances will be treated in detail. Suffice it to say here that the system of "pointing out" is the only system of gun-pointing that permits correction of both vertical and forward allowances. The gun swings along just

ahead of the target. If the target dips, the gun can dip—and keep on swinging. If the target starts to fall, the gun can be lowered—and keep on swinging.

Don't forget that every shot in "pointing out" is a true swing—a physical movement on a pivot, just like golf or baseball or croquet. No matter if the target is going straight away shoulder high—there will be a definite *swing* as you bring the gun into position. If the proper lead—as in this case—is zero, then the gun steadies and stops, rather than swinging on in its arc.

The whole theory of "pointing out" is *perfect control* of every movement of the body, and its mechanical appliance, the gun. If the target—as a startled grouse—suddenly increases its speed or changes direction, the eye automatically follows the target and the gun automatically follows the eye.

If the target—as a duck poised to look over the decoys—suddenly stops in midair, then the eye stops, the gun stops to maintain the proper line of sight—and the trigger is pulled just as automatically as in an orthodox swinging shot.

You have now gone to a great deal of trouble to build up a system of gun-pointing based on the necessary mathematical lead to bring the shot-charge upon the moving target. You have considered the distance the target moves until the shot-charge can reach it as a constant factor in all your calculations. You will learn, as your shooting experience develops, that "pointing out" is the most satisfactory method to use in trapshooting; in overhead shooting at ducks or driven pheasants, and its counterpart in target shooting, called "tower shooting".

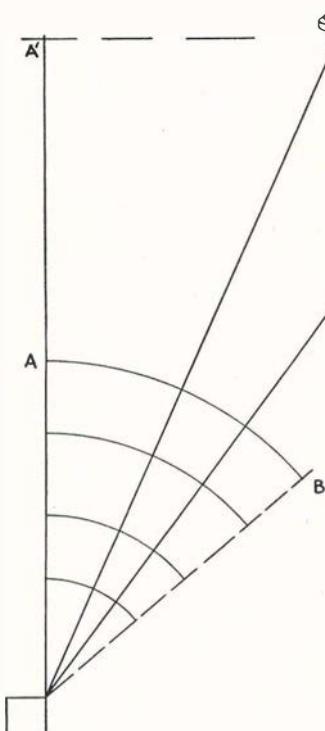


FIGURE 6—SWINGING PAST

Under this system of gun-pointing, the eye picks up the target along the line A-A'. The gun swings through the arc A-B at a faster apparent speed than the target. The eye transmits the command to fire as the line of sight passes the target. The reaction time—or lag—of the shooter is converted into forward allowance (C) by the distance the gun moves ahead of the target while the hand is obeying the command to fire. If the shooter times his swing correctly, the lead thus created by the movement of the gun past the target will exactly equal the target's travel during the time of flight of the shot.

You have now gone to a great deal of trouble to build up a system of gun-pointing based on the necessary mathematical lead to bring the shot-charge upon the moving target. You have considered the distance the target moves until the shot-charge can reach it as a constant factor in all your calculations. You will learn, as your shooting experience develops, that "pointing out" is the most satisfactory method to use in trapshooting; in overhead shooting at ducks or driven pheasants, and its counterpart in target shooting, called "tower shooting".

### PART III—SWINGING PAST

You can progress now to another system which is applicable to Skeet shooting, to certain types of upland shooting—such as quail in open country—and to a lesser degree to hand-trap shooting. This is the method of "swinging past".

The "swinging past" method is at its best in all types of shooting at close or medium range where the flight of the target is fixed along a definite path—in Skeet shooting, for example. Skeet targets follow the same track, one after another, and do very little bobbing or ducking while the full power of the trap still urges them forward.

If your eyesight is normal and your physical reactions reasonably prompt, you can actually eliminate calculation of the forward allowance—merely by increasing the speed of the swing to a pace faster than the rate of progress of the target. Then, as the gun muzzle swings past the target, you press the trigger, sighting on the target itself. What happens is this:

The gun, moving in its own arc at a faster pace than the target, overtakes and passes it. The brain wills the command to pull the trigger at the exact instant the gun muzzle passes the target. In the one-fifth second required for the shooter to react to the mental command to fire, the gun continues to swing at its faster pace, and automatically builds up a forward allowance which is sufficiently exact for targets in stable flight.

Draw a diagram illustrating the "swinging past" method, similar to Figure 6. Note that the time of flight of the shot-charge is definitely a factor—it hasn't been ignored or pushed out of the picture, by any means. Rather, the same mathematical lead representing target movement during the time of flight of the shot-charge is still the basis for the forward allowance, but the correction for trigger time—you recall it was *plus* in the case of snap shooting—becomes *minus* because the gun is swinging faster than the target. Trigger time is thus converted into forward allowance—just the reverse of your snap-shooting method.

The ideal timing under the "swinging past" system is achieved when the *minus* correction for faster gun swing exactly equals the *plus* correction of the estimated mathematical lead.

You have figured out for yourself that the mathematical lead changes with each change in direction of the target from your own position. Therefore, it will be necessary to change the pace of your swing under the "swinging past" system with each change in shooting position with respect to the path of the target, since speed of swing alone regulates lead under this system.

The big advantage claimed for "swinging past" is the fact that the trigger is pulled when the line of sight is exactly upon the target—a definite object—rather than a visualized aiming point a fixed relative distance away from the target. Yet, a big disadvantage is the lack of a definite rule for regulating the speed of the gun swing. Again, sudden changes of direction of the target are difficult to detect with the faster swing required when "swinging past".

As your experience increases, you will be able to analyze your own shooting problems and definitely assign each type of shot to the proper system. Eventually the time will come—if you devote enough thought to your shooting—when you will be able to execute any shot by the most appropriate method of gun pointing—and without the slightest preparation! Just like pulling rabbits out of a hat!

## PART IV—THE VERTICAL CLOCK

One of the best plans for applying the proper pointing method is to visualize the old army method of the vertical clock. Imagine that the exact center of the clock face is the point in space immediately over your gun muzzle as you "face the shot". Then the *apparent* direction of the target can be flashed to the brain by the eye as a "2-o'clock" shot, or a "5-o'clock" shot.

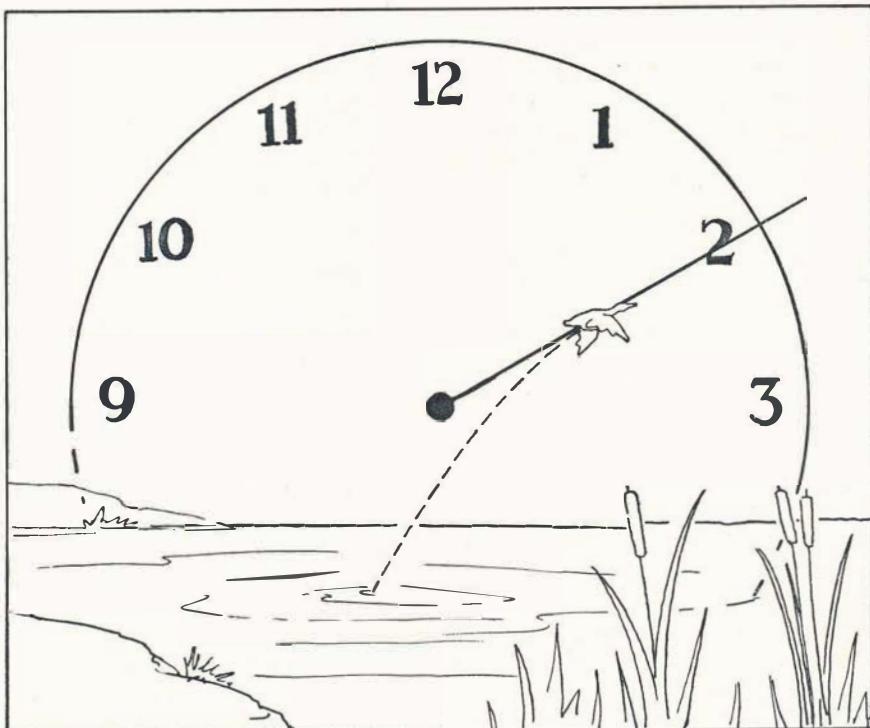


FIG. 7. Right and left quartering shots with the target taking on greater elevation are common in wildfowl and upland game shooting. In the situation pictured above, the duck has jumped from the shooter and is driving toward the right front of the gunner at top speed. The gunner having placed his feet and aligned his gun near the path of the target at the clock-face zero, is in the best possible position to swing toward two o'clock and execute a quick clean kill.

In applying the vertical clock system for indicating angles of gun swing, don't get the idea that you have to stop and conjure up the image of a clock-face before taking each shot at game or at a clay target. The vertical clock system is merely the simplest known method of visualizing angles without the aid of a mechanical device. The mind quickly visualizes a "2 o'clock target" as one moving to the right, and rising slightly from the horizontal. Certainly this description is easier to comprehend quickly than the following:

"A target appearing at the immediate front and moving to the right at an angle 30 degrees above the horizontal."

For one thing, it isn't very often that a shooter's eyes are both in the same horizontal plane. So how could anyone depend upon the correct position

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of the horizon as the basis for estimating the angle of flight of a target?

On the other hand, the vertical clock system requires only a point in space—any point covered by the gun muzzle when you are ready to begin your gun swing. As you proceed from chapter to chapter of this book, you will see that the vertical clock system is used merely as a simple means of transferring approximate measurements of angles from the printed page to your brain.

You *don't* take a clock with you to the shooting club or to the duck marsh, but you *do* improve your shooting by using the vertical clock as a quick and easy method of identifying the various possible angles of gun swing.

You will learn later on that "facing the shot" consists actually of three movements—placing the feet in order to fire comfortably in the required direction, pivoting the body to follow the target's flight with the eyes, and thrusting the gun to the "ready" position.

In the clay target games such as Skeet and trapshooting, *you* dictate the approximate time of release of the target. The fixed location of the trap regulates the point of beginning of the target's flight. Accordingly, your clock-face zero will be the point in space where you can expect the target to appear.

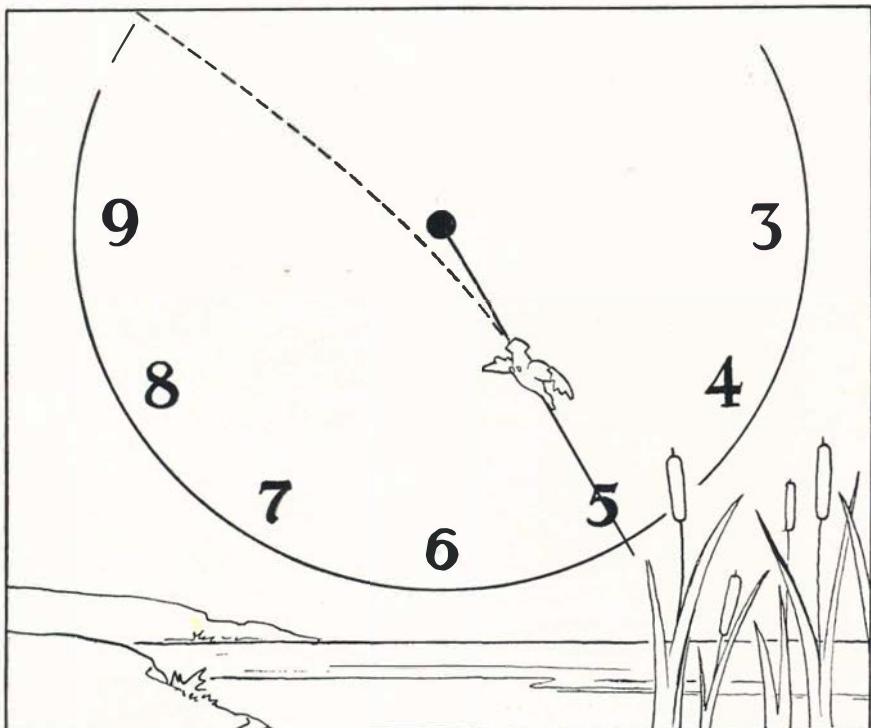


FIG. 8. One of the big attractions of wildfowl shooting is the large number of shots the gunner obtains in which the target approaches from the rear, or high from the front or sides, and then goes away at top speed, offering an exceedingly sporting target. In the shot pictured above, the gunner facing forward has noted the approach of the duck over his left shoulder, and is "facing the shot" at the point represented by the zero of the clock dial. As he calculates, the target passes very close to the point in space he has visualized as the center of his clock face, so the gunner connects quickly and easily by a rapid swing to the right and down—in other words, toward 5 o'clock of his imaginary clock dial.

In game shooting, the time of appearance of the target and the direction of its flight will be beyond your control. You will merely snap into the ready position as the target appears suddenly before you. Your clock-face zero then will be a point on or near the line of flight of the target, usually the point—as in upland game shooting—where the fleeing bird or animal is recognized as a target. Thus, the eye must register the direction of the shot from this point onward along the path of the target.

In any kind of shooting, the zero of the clock face will be that point in space on or near the path of the target which serves as a beginning point for the eye in estimating the apparent direction and apparent speed of the target.

A 2-o'clock shot on the vertical clock is a target moving from left to right, and rising at an angle of about 30 degrees from the horizontal. The proper swing to produce the right forward allowance will move upward as well as from left to right. A 5-o'clock shot will be descending from the horizontal at an angle of about 60 degrees as it also moves from left to right. A quail taking off on a right-quartering course is a perfect example of the 2-o'clock shot, while a duck decoying from the left rear often produces a 5-o'clock shot. In Skeet shooting, you work completely around the vertical dial, with the high-house bird at Station 1 as a 6-o'clock shot, and the low-house bird from Station 7 as a 12-o'clock shot.

Always bear in mind that the *apparent* direction and *apparent* speed of the target are of vastly greater importance than its actual speed of flight. For example, the 2-o'clock shot may involve a target traveling at exact right angles across your front, or it may be the right-quartering quail serving as the example above. Since in either case the apparent direction at the shooter's eye is the same, then the *direction* of the gun swing from the center of the clock face toward 2 o'clock will be exactly the same.

For shots at all short and medium distances with the shotgun—from 20 to 40 yards—the actual speed of the target may be ignored entirely. The *apparent* speed only need concern you, because at short and medium ranges, the velocity of the shot-charge is reasonably constant, and the relationship between the actual speed of the target and the velocity of the shot-charge remains—for all practical purposes—definite and fixed.

The eye quickly learns to estimate *apparent* speed along with *apparent* direction, and to combine both factors in its flash to the brain. After all, it is merely necessary for the eye to warn the brain that the swing of the gun must be fast, or slow, or in between, in order to overtake the target. The muscles of the body, responding to the urge of the brain, then go into action at somewhere near the proper speed to overtake and pass the target, using either the “pointing out” or “swing past” methods. The speed of the swing is accelerated or retarded as the movement progresses, as a correction of the original estimate of the eye, with the *apparent* speed of the target as pacemaker.

In long-range shotgun shooting, actual target speed assumes vital importance. Whereas the speed of the target will remain constant, the velocity of the shot-charge will diminish rapidly with distance. The ratio between target and shot-charge speed will not be the same at 60 yards as at 40 yards.

If the ratio remained the same, "swinging past" would be just as effective at the longer range as at the shorter, because the actual forward allowance at the target would increase in exact ratio with the range.

Prove this to your own satisfaction with pencil and paper. Merely draw the sides of an acute angle, and cut the sides with straight lines passing through points on the sides equi-distant from the apex. Let one side of the angle represent the actual direction of the target in space, the other side the line of the shot-charge. Thus, while the angular lead or forward allowance at the gun remains the same, the actual lead in advance of the target increases in direct proportion to the range.

Much of the efficiency of high-speed shotgun loads is derived from their higher remaining velocity at long ranges, thus making possible shorter leads than would be necessary with loads of ordinary velocity, such as Skeet and trap loads. For many shooters, high-speed or long-range loads produce excellent results with the "swinging past" system, even at the extreme ranges of modern wildfowl shooting.

For the average shooter, however, "pointing out" is far more satisfactory at long and extreme ranges. "Pointing out", being essentially slower in pace than "swinging past", permits more exact correction of swing-direction and swing-speed, based upon the visible relationship between line-to-target and line-of-flight of the shot-charge. The eye actually estimates this distance in "pointing out". In "swinging past", there is no such estimation, the lead being entirely dependent upon speed of swing.

An excellent example of the difference between the two systems is afforded by the practice of many top-notch trapshooters in changing the method when changing from 16-yard to handicap targets. Although the difference between the 16-yard position and the longest handicap position—at 25 yards—is only 9 yards, many fine shots habitually use the "swinging past" method for 16-yard targets, but change to "pointing out" for handicap targets.

A good rule is to observe the distance at which you take your shots, in comparison with your shooting companions. If you are slower in "getting on" your targets, no doubt "pointing out" will be best for you until you learn to speed up your timing to deliver the shot in reasonably fast time. Then, and then only, will "swinging past" produce the best results.



## CHAPTER II

# Applying Your Knowledge

### PART I—THE GUN AND THE TARGET

**I**N THE preceding text, you have learned *what* you must do in order to hit flying targets successfully. It is necessary to know *what* to do in order to do it. *How* to do *what* you must do is now the order of business.

Changing over from a pencil to a shotgun may seem like a large order, particularly to beginners in the art of wing shooting. Yet, many men who never learned to use a pencil can do things with a shotgun. As for those of us to whom pencil-pushing is old stuff—if we cultivate the “feel” of a shotgun to the point where we are as familiar with its weight and balance as we are with the pencil’s, then in truth wing shooting need hold no mysteries for us.

Modern shotguns are built to inspire confidence. Their slim, streamlined beauty puts to shame the old fowling pieces with which Bogardus, Kimble and many, many others achieved undying fame. One has only to “heft” a truly modern gun in his two hands to realize that it is a marvelous precision instrument, quite different from the crooked-stocked, sway-barreled implements which Bogardus and Kimble used. Yet, Bogardus and Kimble developed a skill with their ancient weapons scarcely less phenomenal than the dexterity of many modern gunners.

The reason—practice, constant practice! The old masters had uncounted targets upon which to train their minds and bodies, ultimately achieving such perfect co-ordination that even their clumsy weapons appeared as feathers in their hands. Their shooting was principally at flying game, of which there was no lack before the turn of the twentieth century. On the other hand, the modern clay target and practical, efficient target traps were practically unknown in their day. They could not get in an automobile and drive in five minutes to a Skeet field or trapshooting ground. They had to take the shooting game the hard way. It’s really easy for you and me, if we take it in our stride, don’t worry about details, and persevere in practice until we achieve the same dexterity in gun handling that characterized the good shots of grandfather’s day.

Summing up the problem of applying the knowledge of wing shooting you have already gained in preceding pages, it must occur to you that modern arms and ammunition will assist you tremendously in becoming a good wing shot. You may even tell yourself, in all truth, that you have a big advantage over the old masters in the perfection of present-day guns and shot shells. Then, you have just as much opportunity to shoot as the old-timers, utilizing clay targets which an obliging attendant will throw for you in the same track until you conquer a jinx post at Skeet or a peeve

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angle at the traps. Could any arrangement be more ideal—particularly when so many kindred spirits in the ranks of clay target shooters stand ever ready to give you a lift with your shooting problems?

Your tendency at first will be to overdo—and this applies both to the novice and to the veteran fighting a slump. You will want to shoot too much at a time; you will over-control your gun, putting too much effort into the job to acquire a smooth, easy rhythm; and, perhaps, you will over-control mentally as well, fighting the game instead of playing it. After a few sessions, remembering never to keep on shooting until you are tired, it will come a little easier. Finally, you will slip into the groove some day, perhaps unexpectedly.

If you continue on for any length of time without showing visible improvement, consult a professional instructor or a friend who is a good shot. He will be glad to devote just as much time to your problems as you do yourself—sometimes more. He will prove an invaluable aid in acquiring that smooth, easy swing, that is just as essential to success in shooting as in golf, swimming or any other personalized sport. He will point out the lost motion, the over-exertion, the fixed tensity that intrude to prevent perfect co-ordination between brain, eye and body.

After all, you *know* that shooting is a game of controlled relaxation. The obvious purpose of relaxation is to assist co-ordination. A blocked brain, fixed eyes and frozen muscles defeat co-ordination by preventing relaxation.

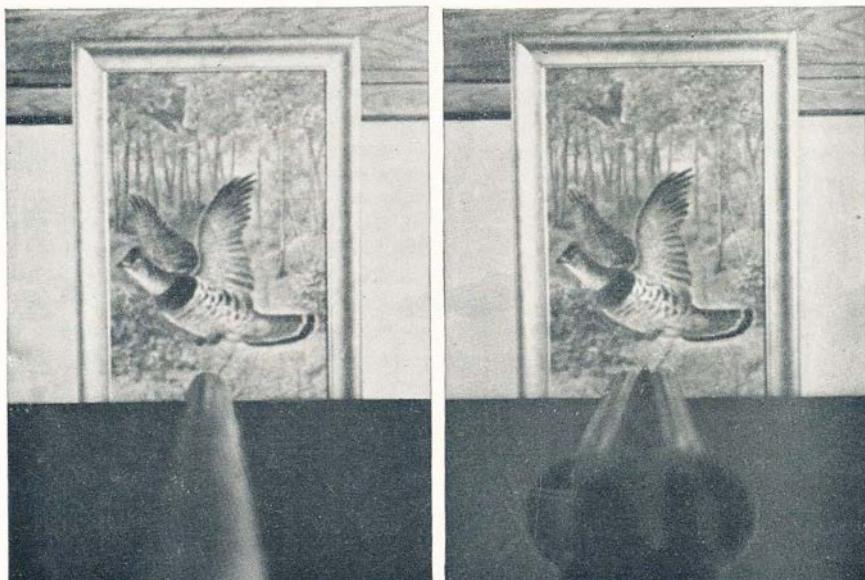


FIG. 9. In these photographs, the lens of the camera is substituted for the eye in aligning, first, a common stick upon an artificial flying target, and second, the aligning of the tubes of a modern shotgun. Note that the portion of the stick nearest the eye and the rear end of the tubes of the gun are blurred and indistinct, whereas the forward end of the stick and the muzzle end of the tubes and rib of the shotgun are clear and distinct. The target is clear and distinct in each case. This figure illustrates perfectly how the shooter should train himself to follow flying targets with the end of his gun barrel, and not by using the stick or the rib of the gun as a straightedge with the rear portion level with the eye.

From the instant you take your stance, and until the shot is delivered, smoothness must characterize your every mental process and physical reaction. Thus the proper way to approach your shooting is to resolve, first of all, not to do anything that will interfere with smoothness of swing.

One way to acquire smoothness of swing—and an excellent bridge for that gap between pencil and shotgun—is to practice a little “dry shooting” with a walking stick or some similar tubular object three or four feet long. If you or your neighbor owns a playful terrier, draw him into the game. Try sighting the stick at the terrier as he plays around you, being careful to keep the end of the stick pointed exactly at your unwitting assistant. Notice how easy it is actually to see the tip of the stick and the terrier at the same time—how easily the tip of the stick follows every movement of the “target”. If no terrier is available, simply sight the stick quickly at objects on the wall, shifting from one to the other as rapidly as your brain can will the movement and your eyes and hands can obey the command of the brain.



FIG. 10. Carrying further the idea of following a flying target with the muzzle of a shotgun as if that gun were a broomstick. Note that the alignment of the stick upon target is accomplished by the co-ordinated movement of the hands, which is the only possible method when using the stick, and the preferred method when using the shotgun. Note the great similarity between the positions of the two hands on the stick and on the shotgun in the photographs above.

If, later on, you experience difficulty in lining up your shotgun on a moving target, remember your experience with the stick. *Then* there was no difficulty whatever in keeping both the target and the point of the stick in perfect alignment. You knew the end of the stick was right there where you wanted it. You were not worrying about releasing a trigger at the proper moment. No thought of “pointing out” or “swinging past” intruded upon your mental or physical processes. All you had to do was follow the target with the end of the stick, no matter how the target leaped or changed direction.

The smooth, easy following of a moving target with the muzzle of your shotgun is exactly the same thing as following the terrier with the stick. Only, if you do not strain mentally or physically, it's really a lot easier. Your shotgun has a crook in it to make it line up easily with your eye. It has a straight edge in the form of a rib down the top of the barrel—or between the barrels if it is a double gun—that automatically guides your eye to the front sight. If you never learn anything else about wing shooting

beyond following the target with the front sight, you will still break a lot of targets and bag a lot of game.

Remember, you have already learned that you must not stop following the target while you trip the trigger. That will give the target 18 feet, more or less, head start on the shot-charge. You will *not* be following the



FIG. 11. This figure completes the illustration of pointing out flying targets with a shotgun as if the tube or tubes of the gun were an ordinary broomstick. In the picture at the left, note that the pointer has brought the stick to the eye so that he follows the flying target with the tip rather than with the full length of the stick. This illustration explains thoroughly why a gun should be fitted to a shooter so that the eye will be slightly above the rear end of the straight edge formed by the tube of the gun, or the rib, in the case of a double gun. The comparable photograph at the right shows the perfect shooting position with a modern shotgun which has been carried to the shoulder with *both* hands and which fits the shooter in such manner that the rear of the rib is slightly below the level of the shooter's eye.

target if you stop your swing while you release the shot-charge. Call it follow through, "calling your shot", or whatever you will—if the muzzle of your gun remains in smooth motion, following the target, until the shot-charge leaves the barrel, then in truth you will have mastered the one great problem in wing shooting.

True, you must learn to move the front sight out in front of the target and hold it there while you swing—as in "pointing out". Or, you will become skilled in releasing the shot-charge while the front sight is passing the target—as in "swinging past"—and in performing changes of *both* speed and direction of swing at the same time. These maneuvers will not bother you if you have learned to follow the target—just as the good golfer learns to keep his eye on the ball. Every golf pro knows that unless his pupil actually *sees* the club head take the ball, he has merely hit it from memory while the eye was roving down the fairway. The same thing holds true in wing shooting. Unless you actually *see* the front sight—or at least the tip of the barrel or barrels—in juxtaposition with the target at the instant of release of the shot-charge, the shot was fired from memory—not by gun pointing.

If this be treason, make the most of it—and be smart. Listen patiently to those shooters who claim never to see—or even be conscious of—the front sight or gun muzzle when they release the shot-charge. They are absolutely honest in their statements. No doubt they have acquired such perfect co-ordination of mind, eyes and body that their shotgun is pointed instinctively—like pointing the forefinger at an object without ever bringing the finger within range of the eye. They are the blessed of the shooting

fraternity—but they win few championships. Listen to their theory, yes—but then sneak out and watch a trap or Skeet champion in action.

If a trapshooter, you will see him press his cheek on the stock just so, actually sight along the rib of his shotgun, and call for the target. Watch his head carefully. You will see him swing for the widest angle without ever disturbing the perfect alignment of the eye and front sight. When the front sight covers or precedes the target by exactly the right distance, he pulls the trigger.

The champion Skeet shooter does exactly the same thing, except that he does it all after the target is in motion. Note carefully how quickly his cheek finds the stock, which was held below the elbow until the target appeared in the air. You suspect that he had no time to sight along the rib—but that he knew during every inch of the swing the exact position of his front sight or gun muzzle.

Your own observation of high-class shooters will thus convince you of the necessity of maintaining that perfect alignment of eye with front sight.

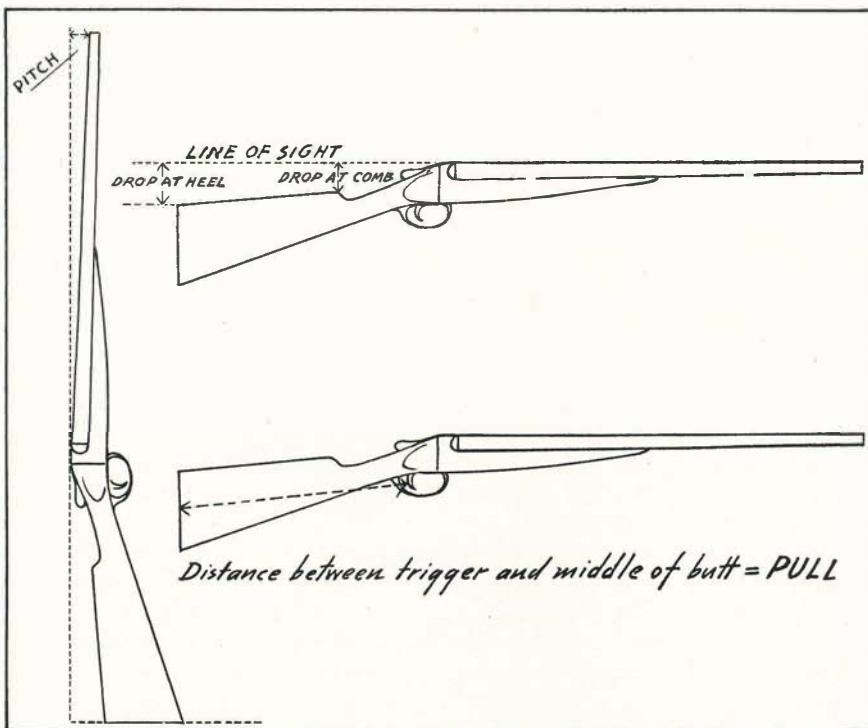


FIG. 12. The drawing illustrates the four most important dimensions to be considered in the fitting of a gun stock to a shooter. These are drop at comb, drop at heel, length of "pull", and pitch. Of the four dimensions, the most important is pitch. The drop of the stock at comb and heel may dictate whether a gun is "straight" or "crooked", but in the last analysis, the height of the comb where the shooter rests his cheek merely will govern the position in which the head must be held while shooting. Pitch actually regulates the raising or lowering of the point of impact of the gun out where the target is, and is obtained by altering the slant of the butt. A gun with a long "toe" will have a high point of impact when the flat surface of the butt is held firmly and evenly against the shoulder, whereas a gun with a shorter "toe" will have a lower point of impact because the end of the barrels will have more "pitch down".

You will note, too, that the eye finds its place above the rib by the sense of *feel* in the cheek—there is no such thing as looking at the stock to see where to put the cheek. Some shooters exaggerate this motion so that they resemble sandpipers in their dipping. Others merely slide the head forward quickly and smoothly—and find the stock waiting there. Whatever the motion, the effect is the same—to insure proper alignment of eye and gun muzzle.

This brings up the question of the proper fitting of your gun to permit your cheek to fall into exactly the same position each time you fire. Proper gun fit is the best way—if not the only way—to insure proper alignment of eye and gun muzzle. If you still see the front sight in the proper place, and yet miss the target, you can wager your chance at Paradise that you popped that one off “from memory”—with your head up and your cheek away from the stock. Just as “looking up” is the most common fault in golf, so is the lifting of the head the most common fault in shooting. There are many other ways to miss a target, some of them beyond your own control—but head-lifting has ruined more good scores than all other faults combined.

Be sure, above all else, that proper gun fit includes the shaping of the stock so that it will not hurt you when the gun is discharged. Such proper shaping depends upon the contour of your face, particularly the location and prominence of your jaw and cheek bones. If your face is a perfect “long oval” and your cheek bones not too prominent, perhaps a high “comb”—the portion of the stock coming in contact with the cheek—will serve you well. High, thin combs are of the English persuasion—but they bang the cheek bones of many men. Low, rounded combs that fit under the cheek bone and line up against the fatty portion of the cheek are more to the American tradition—and serve just as well to line up the eye and front sight. Finally, a Monte Carlo comb may be needed to provide a fuller, rounder comb than either of the other types—with the added advantage of holding the eye at an exact level, whether the gun swing goes to left or right.

“Drop” and “pitch” are important elements in gun fitting, since they have an important bearing on the point of impact of the shot-charge out where the target is winging its way. Drop merely regulates the height at which the head is held in pointing the gun at the target. Persons with long necks and sloping shoulders require more drop to put the comb up against the cheek and the butt down against the shoulder. Normally-built persons should get along with as little drop as possible, since excessive drop may cause under-shooting if the butt happens to slide too far up on the shoulder.

No amount of drop—too much or too little—affects the point of impact at the target as does the pitch of the butt. The proper amount of pitch in a gun varies with the purpose for which it is intended. Field guns and Skeet guns usually have more “pitch down” than trap and wildfowl guns, since the latter usually are used on rising targets, and a high point of impact is desirable. Proper points of impact for different kinds of shooting will be checked in succeeding paragraphs. Suffice it to say here that height and shape of comb, drop, pitch and length of stock—or “pull”—all have a definite bearing on the perfect alignment of eye and gun muzzle.

Be sure to consult an arms or ammunition trade representative or an experienced dealer at the outset of your shooting experience—or again if you

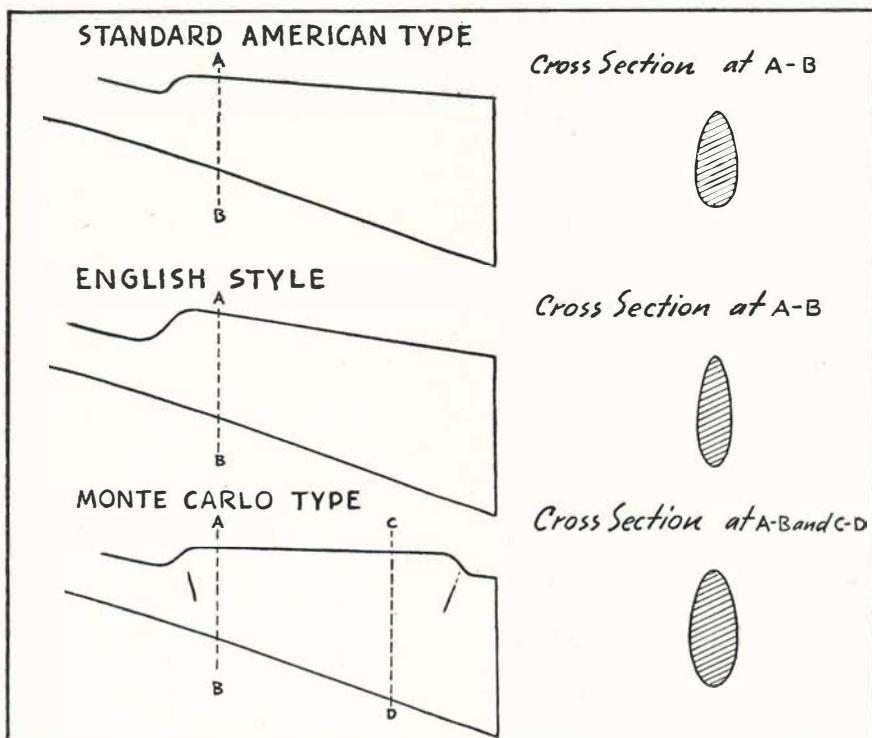


FIG. 13. Aside from the four standard measurements by which the stock of a gun is fitted to a shooter, the contour of the stock is of paramount importance. Stocks of standard American guns ordinarily have a lower and fuller comb than guns manufactured according to the English fashion, which usually have a high, narrow comb. The practical difference between the two styles is that in the American type, the fatty part of the cheek rides over the top of the comb, whereas in the English style, the cheek presses against the side of the comb and does not roll over it as in the American type. If a shooter can use a gun with as much as  $2\frac{1}{2}$  inches drop at heel, the ideal comb is the Monte Carlo type, which automatically keeps the height of the shooter's eye at the same level whether the swing is to the right or left. This is accomplished by finishing the comb line parallel to a prolongation of the sighting plane. Shooters who do not care to invest in a Monte Carlo stock can often achieve the same result by straightening the comb line of an ordinary stock, which has the effect of maintaining the eye at a constant level. The one big objection to this treatment of a standard stock is that it requires some shooters to fire with the head too far forward—in which case a Monte Carlo stock is the only approach to the ideal.

are that old-timer with a jinx. It is seldom necessary to order a specially-built stock. More often, simple alterations will fit a standard stock to a normal person. Standard stocks are designed specifically to fit the greatest possible number of people—and most people can learn to shoot one very well. But if you are in doubt—seek counsel. Do not let yourself be hurt. Above all, do not attempt to shoot with a stock which does not permit accurate alignment of eye and front sight every time the gun is mounted.

Proper gun fit is illustrated by the actual photograph in Figure 9. The lens of the camera represents the human eye—not only in its relative position, but in its ability to "see" the forward section of the rib clearly and distinctly at the same time that the target is clear and distinct. The human eye, after all, is merely a lens. When in universal focus—"infinity" to the camera-wise—it sees distant objects clearly, but can not distinguish nearby

objects without a definite change of focus to provide short-range vision.

The eye at universal focus can, however, see the front sight clearly—and the middle sight, if one is provided as on many trap guns. Or, the eye can see the forward two-thirds of the rib clearly, at the same time that the target is sharply in focus. The inference is plain that the eye should be elevated slightly above the rear of the rib to give the straight-edge effect of viewing the rib from slightly behind and above—just like sighting along a yard-stick. This relationship of eye to rib presupposes a point of impact higher than dead center—but is not our goal the following of the target with the front sight? How can we follow it if we blot it out with the muzzle?

It follows that no shotgun should shoot exactly point-blank, which means that the center of the shot pattern would correspond exactly to an extension of the rib. Rather, the pattern should be centered above the rib—how far above depending on the type of shooting for which the gun is intended.

Now, having learned from the photograph exactly how the target should appear in relation to the front sight, as you follow it with your swing, prepare to go out and do some target-following of your own!

## PART II—THE BRAIN AND THE EYES

The brain has only one function in advance of that all-important flash from the eyes—"There's the target!" That function is to create the proper state of mind to permit the body to perform its functions easily and smoothly.

All good shooting is a result of proper direction of the conscious mind. All poor shooting results from combined errors of the mind and the body, which may be induced either by conscious or subconscious interference with a normal relationship between the mind and its servants—the eyes, the hands, and all the rest of us.

The most common fault of the conscious mind is an improper approach to the shot. If the mind prepares itself for the shot with a "Get this bird! Get this bird!" fixation, the same fixation is transmitted to the muscles of the body. Bound muscles destroy smoothness of swing. A bodily as well as a mental fixation exists. Even the eyes become fixed with a glassy stare, and are physically incapable of performing the work assigned to them.

The proper mental preparation, as you get ready to fire each shot, is a "Watch for the target!" attitude. This induces an alert, watchful consciousness of the work to be done by both mind and body. The eyes, in their primary function of agents of the brain, do not become fixed. Rather, they are held at universal focus, ready to change direction instantly upon the appearance of the target. This thing called determination is all right in its place, and it even has a place in shooting, if properly applied. If determination—to you—means a set jaw and a fixed stare, dispense with it at once. You will break more targets or bag more game if you take your shooting less seriously.

The most common fault of the subconscious mind is flinching. Anticipation of recoil, muzzle blast, a bump on the jaw, or some other physical dis-

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comfort, blocks the normal mental process so necessary to proper functioning of the body. Again, intrusion of some extraneous thought as the mind concentrates on the job of the moment may interpose a mental block just as disastrous to good shooting as a physical manifestation. Inability to keep the mind on the job of the moment is a common fault, even with good shooters. The remedy for this state of affairs is to keep your mind on your business.

Physical manifestations of flinching may be classified as downright gunshyness. The conscious mind is not afraid of the discharge of the gun. The subconscious mind, however, resents something about the procedure. If ever there was an excuse for the ancient platitude, "an ounce of prevention is worth a pound of cure", that excuse applies to the fault of flinching. Continued use of an ill-fitting gun, heavy loads in a light gun, a gun with too short barrels, or any one of a hundred ill-advised errors of judgment, may cause flinching. Plain, every-day horse sense would have prevented 99 per cent of all cases of flinching since the beginning of the sport.

Do not get the idea that actual physical pain always is associated with flinching. The most common fault in golf—the lifting of the head—is exactly the same thing as flinching in shooting. It has no association with pain. The mind simply rebels at doing something that calm reason insists must be done, if the shot is to be executed properly. In shooting, the mind may rebel against departure from the normal sequence, in "willing the shot" instead of following the natural sequence of liming up the gun, and then willing the shot. All this was explained in the chapter on "Pointing Out". Cases of mental flinching, however, yield quickly and rapidly to treatment—and the best treatment is practice.

Physical flinching may be cured by exactly the same methods that should be applied in the case of a gunshy dog. Any person with sensitive ears should plug them with cotton or the little rubber devices known as ear-stops, thus deadening the effect on the ears of the report of the gun. If physical flinching persists, abandon all attempts at game or target shooting with the larger bores, and take up "plinking" with a .410 and "short shells"—the lightest efficient gun and charge combination possible to procure. Then work up gradually to the larger bores again. Sometimes, laying off all shooting for a few months will effect a cure. Finally, have a friend assist you by standing behind you and handing you the gun before each shot, loading it or leaving it empty without your knowledge. Few men can endure the self-ridicule of flinching with an empty gun.

Since the primary function of the eyes is to act as agents of the brain, they may be expected to conform to mental processes more nearly than any other member of the body. In the chapter on "Pointing Out", it was shown by diagram that the eyes can and must combine two definite assignments in delivering the shot, these being:

- (1) To serve as agents of the brain in setting off the mental processes necessary to the delivery of the shot.
- (2) To operate as a range-finder to determine the location of the target, and its *apparent* direction and *apparent* speed.

The third important function of the eyes—that of aiming or pointing the gun—comes into play *after* the brain has been set to functioning, and *after* the target has been located and its apparent direction and apparent speed reported to the brain. As explained in "The Gun and the Target", this third function of the eyes should become as nearly mechanical as possible. Shooting skill will improve in direct proportion to the achievement of this ideal.

Mankind has never been able to improve upon the number and arrangement of the eyes in performing any task involving the *apparent* direction and *apparent* speed of an object. Mechanical range-finders, binoculars, ordinary field glasses—all employ two lenses set some distance from each other. The old-fashioned parlor stereopticon is perhaps the best example of them all.

At the same time, monocular instruments are used universally in the process of lining up one object on another, or placing an object in a definite position with respect to another. The telescope, the surveyor's transit and the mariner's sextant are examples of devices of this type.

From the foregoing, you will deduce that binocular action of the eyes best performs the functions of setting off the mental process and acting as range and direction finder. Monocular action is best for alignment of the gun upon or in front of the target.

Therefore, shoot with both eyes open! After the eyes have performed their two binocular functions, that something which oculists call "accommodation" will cause the action of the eyes to become monocular. In shooting parlance, your "master eye" will take command, and the gun will be aligned upon the target by the master eye, assuming that the gun must invariably be fired from the shoulder on the same side as the master eye.

The accepted test for determining the master eye is known to all experienced shooters. You simply hold both eyes open, and align your finger upon some object. If you suspect your right eye of being your "master eye", now close the left eye. If the finger remains aligned upon the object, your suspicion was correct, and your right eye *is* the master eye. If the finger moves out of alignment with the object, then you guessed wrong—your left eye is the master eye.

Having determined that one eye or the other is the master eye, then continue the test to determine your accommodation. Close the master eye, and align the finger upon the object with the weaker eye. Now open the master eye—which means returning to both eyes open. The finger should jump immediately out of alignment with the object. If it does not jump immediately and positively, then consult a good oculist at once.

No person should engage in any form of clay target shooting without some form of shooting glasses. If your oculist tells you an optical correction is necessary to restore normal vision, then your shooting glasses by all means should carry this correction. If your eyes are normal, plain glasses of a proper tint should be worn to shield the eyes from glare, to protect them from chipped pieces of the target, to keep wind-blown dust and dirt out of the eyes which would cause blinking—and flinching—at the instant of delivering the shot.

The practice of closing one eye now is discouraged in pistol and rifle shooting as well as in shotgun shooting. Closing one eye has a decidedly adverse muscular effect upon the other, since our eyes were designed to be used as a

team. If you are a beginner at shotgun shooting, you will learn to shoot just as quickly with both eyes open. If you are a confirmed one-eyed gunner, and are dissatisfied with your scores, begin immediately to make yourself a two-eyed shooter.

In the beginning, you may cross-fire because your training in monocular gun-pointing has destroyed the accommodation of your eyes as far as shooting is concerned. Your eyes will not work together as a team. The master eye will not take control when, other duties having been performed, your eyes concern themselves only with the alignment of gun upon target. You may have a hard time overcoming this self-imposed handicap, but in the end, improved scores will justify your efforts.

It must not be construed that all good shots are binocular shooters. Many of the nation's foremost trapshooters swear by one-eyed shooting as the best method, and can point to a long list of champions to prove it. From long habit, monocular shooters have reduced the first two functions of the eyes to mere mechanical routine, concentrating upon gun alignment as the only conscious effort of the open eye. And—a monocular instrument is ideal for aligning one object upon another.

However, in trapshooting, the target always appears instantaneously at the same place at the command of the shooter. In all other forms of shooting, the target appears at different places—or at least has that appearance. One-eyed shooting, therefore, will be more successful at the 16-yard traps than at Skeet or in game shooting. If you intend to devote your shooting career to straight trapshooting, there is much to be said for the monocular system. If you intend to do any other kind of shooting along with trapshooting, by all means shoot with both eyes open.

Remember your experience in keeping the stick aligned upon the playful dog. If the accommodation of your eyes is normal, there is no reason why you should not align a shotgun upon a moving object just as easily as you aligned the stick. This means simply that binocular shooting is the natural, easy way to point a shotgun. You never have time to *aim* it in the sense that an engineer aligns an alidade upon a place-mark. Approximate alignment is sufficient, since shot-guns are loaded with hundreds of shot pellets instead of one ball in order to permit approximate aiming.

Take your shooting the natural, easy way. Remember, it's a sport, designed for enjoyment. Any departure from this principle may lead to complete dissatisfaction with your sport because it's just too darned much work.

### PART III—GROOVING THE SWING

Since the brain is the master engineer of your shooting, and the eyes are the chief assistants of the brain, all other muscular action may be combined into one physical function—grooving the swing of the gun to keep it aligned on the target until the shot-charge is unleashed.

Practically every muscle of the body is brought into play in grooving the swing. The lower part of the body, from feet up to and including the hips, regulates lateral movement. The upper part of the body controls vertical movement. Co-ordination of all these muscles must be insured by a proper

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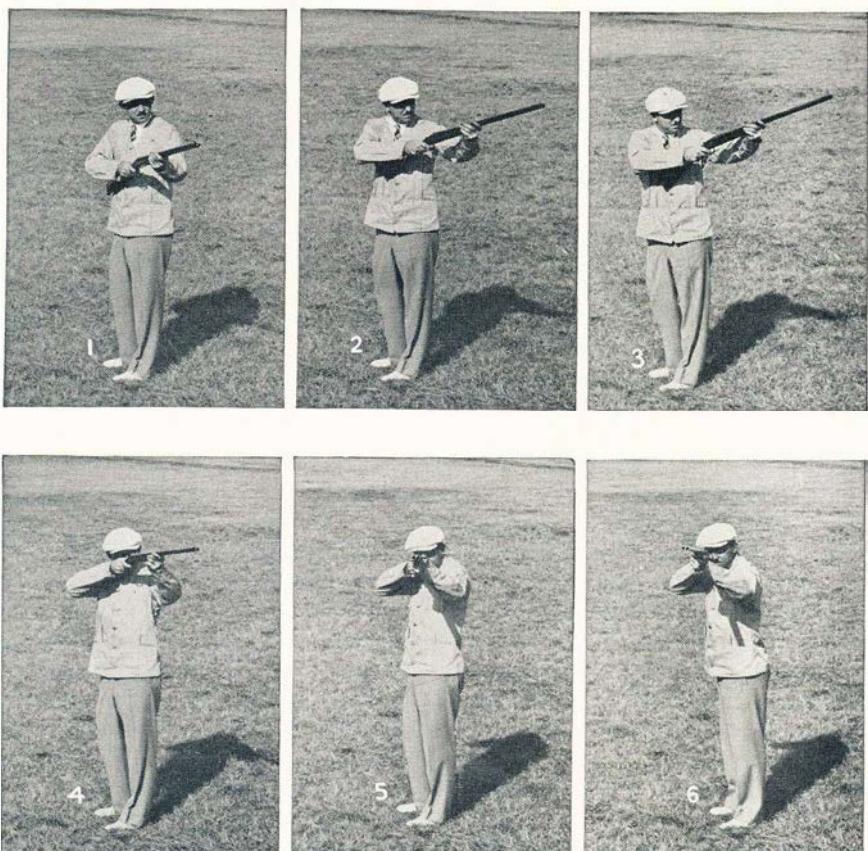


FIG. 14. The series of photographs above illustrates in slow motion the complete gun swing of a shooter firing at a target crossing in front at right angles from the shooter's left to his right. (1) The shooter sees the target while holding gun at ready position and begins swing to the left to pick it up with the sighting plane of his gun. (2) As the swing to the left to intercept the target progresses, the gun comes upward and forward, being under perfect control of co-ordinated movement between the two hands of the shooter. (3) The shooter has now reached the extreme limit of his swing to the left to intercept the target, reverses the direction of his body pivot, now moving to the right in the wake of the flying target. (4) The gun is brought to the shoulder by the co-ordinated action of *both* hands, the shooter's cheek moves forward upon the stock, and the pivot to the right in the wake of the target continues. (5) The pivot of the shooter overtakes the target, since the movement of the muzzle of the gun to the right is faster than the movement of the target, and the shot is fired with the tubes pointing exactly at the target. (6) The pivot continues to the right after the shot is fired, in order that the speed of gun swing will not be diminished as the gun passes out to the right to establish an automatic lead ahead of the target. This series of photographs is a perfect illustration of any crossing shots taken with the "swinging past" method.

shooting position, which in itself must combine the factors of torsion and balance. Torsion initiates and controls lateral movement. Balance controls and regulates vertical movement, at the same time permitting final minor adjustment of the swing by the arms and shoulders.

Thus we arrive at a fixed relationship between torsion and the lower part of the body, and between balance and the upper part of the body. The feet, legs and hips must be so placed as to provide proper torsion to insure lateral movement. The upper part of the body must be so balanced as to permit

vertical adjustment of the arc of the gun swing. The normal placement of the weight of the body, as well as the weight of the gun, the distribution of that weight, and the method of swinging it, must all be considered in assuming a proper shooting position.

First of all, the shooter must so place his feet "to face the shot"—to deliver the shot-charge at the point where he expects to hit the target. In Skeet, trap-shooting, and upland game shooting, targets will be slightly above the horizontal plane of the gun muzzle—not far enough above that plane to require overhead shots, except in the case of Number 8 shots at Skeet. Since modern shotguns are designed to point naturally just above horizontal, when held with the butt flat to the shoulder, it follows that an upright, natural shooting position will serve best to keep the axis of the body's center of gravity perpendicular to the horizontal plane.

Just as in golf, a natural pivot, not a sway, will produce the smoothest swing. Wide-spread legs, hips held askew, abnormally bent knees—all these affectations merely serve to destroy torsion and balance. While it is true that the weight of the gun in front of the body will displace the center of gravity toward the front, this displacement is not so great in a normal person as to require abnormal measures of control. At most, the weight of the gun in shooting position merely shifts the center of gravity to the left leg—in the case of a right-handed shooter—and thus, the left leg becomes the pivot leg and the right leg the balance or "steering" leg. The feet are the twin platforms of the body, and so all discussion of shooting position must begin with the feet.

In "facing the shot", the gun normally crosses the left toe—in a right-handed shooter. This means that the left toe will point a little to the right of the exact spot where the shot-charge is to be placed. Since the feet give a firmer foundation to the body if they are separated at an angle, the right foot will be a few inches back of the left, and with the right toe turned still farther to the right. Conformation of the shooter will regulate the exact distance between the feet and the exact angle between the toes of the two feet. Generally speaking, turning the right toe too far to the right restricts ease of movement to the left. A good rule is to assume a position that is perfectly comfortable and without muscular strain through any possible arc of lateral swing. Try it a few times, and you will find that the feet find their natural position and their natural angle without any conscious attention on your part, provided you face the shot!

Most of the weight of the body will be upon the left foot, evenly distributed as between toe and heel. That part of the body's weight borne by the right foot will be principally upon the toe. The heel of the left foot thus can never leave the ground without upsetting the balance of the upper part of the body. The heel of the right foot may leave the ground in the process of "steering", if it seems more comfortable to swing in this manner. However, if the feet are held reasonably close together under the body, it will not be necessary to raise the right heel to obtain a smooth, easy swing.

Having faced the shot, pivot the lower part of the body—without moving the feet—to face the spot where the target will appear—the zero of the vertical clock. The muscles of the feet, legs and hips will then be under torsion—ready to swing back to the position at which the shot is to be delivered. This



**JOE F. HIESTAND** of Hillsboro, Ohio, winner of many national championships and present holder of the world long-run record at trapshooting, is a perfect example of sound shooting form. Mr. Hiestand stands with his feet close together, his body bent forward only slightly, his left arm well under the gun, and his right elbow raised almost to the plane of the barrel of his gun. The gun shown is a side-by-side double with ventilated rib by Winchester Repeating Arms Company, Division of Olin Industries, Inc.

torsion, it has been explained, is best achieved by a pivot—not a sway. If the knees are bent abnormally, pivoting becomes impossible. A shift of weight to one side is inevitable, and weight does not always shift back to its original position. Thus, after the feet, the knees become the next important consideration in the swing.

Straight legs twist, or take on torsion, much easier than crooked ones. At the same time, the knees must not be locked, which makes pivoting impossible. Just enough "break" or bend in the knees to permit free pivoting is the ideal position for these members. At first, this position may be assumed

consciously, and tried out tentatively in your bedroom or anywhere else. It is not necessary to stand upon a shooting ground in order to cultivate a proper shooting position.

The hips should be level, permitting their pivoting—and that of the upper part of the body—in a horizontal plane. If the hips are not level, balance of the upper part of the body is destroyed, and the resulting swing will be upset by the displacement of the center of gravity. In other words, the swing will be low at one end, high on the other. Or, it may start in the proper arc, only to become high or low as the shifting of balance interferes with the smooth continuity of the swing. Too much stress cannot be placed upon this point of the smooth, even, *level* pivoting of the hips upon the foundation of the feet and legs.

One of the primary reasons for a smooth, level swing is to prevent "canting" the gun—rotating the sighting plane on its long axis, so that the front sight is not exactly on top at the moment of firing. Canting is not the serious fault in shotgun pointing that it is in rifle and pistol shooting, since the sighting plane will place some part of the pattern on the target, even with the gun canted, provided you sight along the rib. The big difficulty is—trying to sight along the sighting plane with the gun canted! The head is displaced from its normal position, and thus the result of excessive canting will be improper pointing—and a missed target.

It has already been pointed out that if the hips are level and the body upright, the upper part of the body will retain that perfect balance so necessary to produce the vertical component of the gun swing. In a natural, upright position, the torso, shoulders and arms point the gun naturally and normally at a point in the foreground just above horizontal. Thus, the gun may be lowered by bending forward at the waist and continuing the movement through the arms and shoulders—which moves the balance of the body forward. Conversely, the gun muzzle may be elevated by bending upward or backward at the waist and continuing the movement through the shoulders and arms—which has the effect of shifting the balance backward.

In the movement of depressing the gun muzzle, the left foot takes more of the weight of the body, checking the transfer of weight to the left foot when the gun muzzle has been sufficiently depressed. Conversely, more weight is transferred back to the right toe by the movement of elevating the gun muzzle—the shifting of balance being checked by the right toe when sufficient weight has been transferred. All of this shifting must be accomplished without the slightest disturbance of the torsion factor—and this is impossible if the body is bent too far forward, or is held rigid in a too-upright position.

The transfer of weight from one foot to the other is so slight, with a good shooting position, as to be imperceptible. It is mentioned here merely as a check point in determining whether or not you have achieved proper balance. If you are conscious of the shifting of the weight, your feet are too far apart, your knees are bent too much, or abnormal placement of some other member of the body is serving to destroy balance—and probably torsion as well. Check yourself thoroughly. Make sure you are swinging from side to side, and up and down, with the least possible shifting of weight, and with the smallest practical displacement of feet, knees and hips.

With the torso held reasonably erect—remember the center of gravity of your body is slightly forward because of the weight of the gun—your shoulders must conform to the job of the arms in holding the gun in the proper position. Since the left hand and arm must be well under the fore-end of the gun to support it properly, your left shoulder will be relatively low. Since the right hand must grasp the gun at the grip, the right shoulder will follow the right elbow. If the right elbow is held high, the right shoulder will be relatively high. If the elbow is held down, hanging relaxed in a natural position, the right shoulder will be little higher than the left.

However, a high right elbow tends to straighten out the shoulder and thus present a flat surface against which to place the butt of the gun. Again, a high right elbow serves to elevate the wrist of the right hand, which is desirable from the standpoint of co-ordination of the hands. A good compromise is to shoot with the right elbow moderately high—not as high as the horizontal position of the rifle shooter, not so low as to permit the upper arm to touch the chest. Midway of the two extreme positions will be just about right. The shooter can judge for himself what is best after studying the functions of the arms and hands.

The arms simply follow the hands—and thus the hands become all important in regulating the position of the entire upper body. The old school of American shotgun shooting was based upon pivoting the gun with the left hand against the right shoulder, thus leaving nothing for the right hand to do except pull the trigger. The newer school prescribes a much more important duty for the right hand—that of co-operating with the left hand in pointing the gun as a two-handed movement, perfectly co-ordinated as to tensity of grip and ease of movement. This change in technique is responsible for the change of dimensions of the modern shotgun from the old—for the abandonment of the “crooked” gun in favor of the modern, straighter type.

The right hand—in the case of a right-handed shooter—also has the responsibility of releasing the trigger. The index or trigger finger must not be frozen by too tight a grip with the right hand. Likewise, it must not freeze as a manifestation of the fault of flinching. It must be flexible in order to obey the command of the eye instinctively, immediately—not so flexible as to require a general tightening of all the muscles of the hand in order to produce a firmness in the muscles controlling the trigger finger. This general tightening-up will cause the shooter to shove or jam the right hand into the trigger-pull, resulting in canting or even actual displacement of the muzzle.

Reams and volumes might be written on the subject of trigger-pull alone. Suffice it to say here that the slow process of “squeezing” the trigger, so necessary in accurate shooting with the rifle and pistol, is too slow for shotgun shooting. Again, in “squeezing” the trigger, the riflemen is not supposed to know when the sear will be released and the gun will be discharged. The shotgun shooter *must* know when the trigger will release in order to estimate his forward allowance properly. Therefore, he will pull or slap the trigger sharply—but not so sharply as to communicate the motion to the gun itself.

“Pulling” a trigger may be described as a contraction of the muscles controlling the index finger, with the index finger already curled around the trigger, and in close contact with it. “Slapping” the trigger consists of bending

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the index finger from a straight position along the trigger guard, *not* in actual contact with the trigger when the movement is begun.

It may interest the reader to know that both the Clay Target Champion of North America and the Woman's Clay Target Champion of North America for the year 1938 are trigger-slappers. Many, many other expert shots at Skeet and the traps subscribe to this method of releasing the shot-charge. They claim for it an almost total absence of contraction of the muscles of the hand not directly concerned with the business of releasing the trigger. Further, there is a tremendous argument for this form of trigger-release in the additional safety



MRS. LELA M. FRANK of Sierra Madre, Calif., four times national women's champion at trapshooting, has cultivated shooting form closely approximating that of other great trapshooters, even though her slight physique requires her to lean well forward to overcome the shift in center of gravity occasioned by the mounting of the gun. Years of successful competition with the best men shooters testify to the soundness of Mrs. Frank's shooting technique. The gun is a repeating shotgun with raised ventilated rib by the Winchester Repeating Arms Company, Division of Olin Industries, Inc.

factor gained by the absence of contact with the trigger until the shot actually is willed by the brain.

However, by far the majority of shooters are trigger-pullers. They go about the business of letting off the shot-charge with the index finger curled about the trigger, effecting final release by a contraction of the muscles—not by suddenly crooking the finger.

It follows that one method or the other will be better for *you*. The better method will be the one which communicates the least possible movement to the gun, the least possible disturbance of alignment. If you find yourself jamming into the trigger-pull with your whole hand, try the other method. Realize that if either method causes all the muscles of your hand to tighten, with a resultant death grip upon the small of the stock, then your fault lies somewhere else than in mere trigger-release. It will then be time to forget the trigger for the time being, and concentrate on a balanced relationship between the muscles of the two hands.

The whole business of gun pointing may be summed up in this thought—the ideal is to preserve the illusion of pointing a stick, which is obviously a two-handed movement, founded on natural instinct, and assisted tremendously by modern changes in gun design. The new, so-called beaver-tail fore-end is intended to keep the hands at the same level in pointing the gun, just as they would be in pointing a stick. Naturally, the major part of the job of starting and stopping the gun, in swinging, is assigned to the left hand, because its arc represents an outer circle of the swing, while the arc of the right hand represents an inner circle. In the main, however, the two hands work in unison after the left hand has started the swing from its normal position of support under the fore-end.

It follows that your gun will be pointed more accurately the farther you extend your left hand out toward the muzzle. You extend the pointing base, which is the distance between the hands, and thereby obtain more uniform control of the swing. At the same time, you sacrifice speed at the gun muzzle in favor of steadiness. Everything about this shooting business is a compromise somewhere along the line. If you hold your left hand back toward you on the fore-end, it can swing through a shorter arc, thus increasing its speed of travel, and relatively increasing the speed of swing of the gun muzzle.

Work out for yourself the problem of the proper position of the left hand, remembering that an extended left arm makes for steadiness, a retracted left arm for speed. It may help you to know that most crack Skeet shooters prefer the extended left arm—and Skeet requires the fastest gun handling of any shooting game. If topnotch Skeet shooters can gain sufficient speed with an extended left arm, undoubtedly you can do the same. Try it.

There remains only to discuss the position of the head in relation to the gun, and to the other members of the body. This already has been touched upon in the discussion of gun fit. Suffice it to say that the right cheek is the means of locking the eye to its position slightly above and behind the back end of the rib or barrel. The cheek should be able to find this position merely by a forward inclination of the head—the least dipping and ducking the better. At the same time, the pressure of the cheek should not be so heavy as to place a drag upon the hands, the arms and the rest of the body in aligning the gun.

The cheek must ride the comb of the gun stock, invariably, without the slightest variation in position or pressure. It is easy to show by mathematics just why this rule is axiomatic—and the most important in shooting technique. A far easier method of proof, however, is to visualize what happens in the case of a right-handed shooter swinging to the right. The entire movement of the gun is away from the cheek. If pressure is relaxed, the head lags behind the swing, and when the shot is delivered, the eye is *not* in its proper position to point the gun. This would not occur in pointing a stick—which can be held by the hands in front of the master eye. But a gun has a stock for the purpose of absorbing recoil against the shoulder, and the master eye must adapt itself to the position defined by the very construction of the gun.

It may be stressed here that the tendency of the head to lag behind the swing in shots crossing from left to right is responsible for making this type of shot the hardest in all gun games, or in game shooting. It is not that a right-handed shooter swings more naturally to the left. If his shooting position is correct, he can swing either way with equal facility. It is merely that a swing from right to left carries the cheek—and the master eye—along with it, and thus insures perfect alignment of the gun muzzle upon the target.

On the same principle, the nearer the comb line of the gun stock approaches parallel with the horizontal, the more accurate the placement of the eye through all parts of the gun swing, either from left to right, or right to left. A swing to the right serves to pull the cheek back along the stock. A swing to the left moves it forward. If there is a big difference between drop at comb and drop at heel, the height of the eye above the sighting plane increases or decreases with movement to the side.

The ideal is approached in the Monte Carlo stock, which has a perfectly level comb line, with the same drop at both ends of the comb. Much the same thing can be accomplished, however, by reducing drop at heel, and bringing drop at comb and drop at heel into a practical relationship.

Whatever the method used to obtain proper gun fit, it is absolutely essential that the cheek ride the comb with unvarying pressure, thus insuring a constant position for the master eye at the rear of the sighting plane. A shot delivered with the eye in any other position means a miss.



## Glossary of Clay Target Shooting Terms

**ACTION OPEN**—A repeating or automatic shotgun with breech bolt back.

**BROKEN TARGET**—One that the referee decides is to be scored for the contestant.

**CALL "MARK"**—Asking puller to release the low house target when shooting skeet.

**CALL "PULL"**—Asking puller to pull the trap and release the target. Used for high house target at skeet and for all trapshooting.

**CHIPPED TARGET**—One with a perceptible piece knocked off. Scored as broken target.

**CLASS SHOOTING**—A division of purse or of contestants in two or more groups.

**DEAD BIRD**—A dead bird or target, so called by the referee, to be scored as hit.

**DOWN THE LINE**—Shooting over two or more ranges.

**DUSTED TARGET**—A target struck by the shot as shown by the dust appearing directly behind it. Not scored as hit.

**DUTCH DOUBLE**—Missing both targets of a pair pulled together.

**FAST PULL**—Where target appears directly as or before shooter calls "Pull".

**GUN BROKEN**—A double barrel or a single barrel with breech open.

**HIGH AVERAGE**—Refers to scores of the contestant who breaks the most targets of the different events on a program or series of shoots.

**HIGH GUN**—Contestant making highest score in certain event, program or series of events.

**HIGH TARGET**—One that is noticeably higher than others or regulation.

**ILLEGAL TARGET**—One out of limits prescribed by rules.

**INCOMER**—A target or bird flying toward the shooter.

**KNOWN ABILITY**—General knowledge of about how many targets on an average that a shooter can break.

**LEFT QUARTERER**—A target or bird flying to the left of shooter or the left of center of the shooting range.

**LOST BIRD OR TARGET**—One that is missed, called "Lost" by the referee.

**LOW TARGET**—One that is lower than regulation.

**MISS AND OUT**—An event where the contestant who misses is out of competition with those who hit or score in the same round.

**NO BIRD**—One at which the shooter does not shoot and is permitted by rules to shoot at another.

**OPTIONAL**—A similar target to the first target missed in each round when shooting skeet.

**OUTGOER**—A target or bird, thrown or going away from the shooter.

**PAIRS**—Two birds or two targets pulled simultaneously.

**POWDERED TARGET**—One that is broken entirely to pieces.

**PRACTICE EVENT**—An event arranged on a program ahead of the main or feature event.

**PRACTICE TARGETS**—Those targets shot at before or between regular program events.

**PROOF DOUBLES**—A pair of doubles the shooter is compelled to shoot at because for some reason the first pair were not broken in the proper manner.

**REGISTERED EVENT**—One that is registered with the governing association of the shoot.

**REGISTERED TARGETS**—All targets in regular program events at registered shoots.

**REGULATION TARGETS**—Those within prescribed limits laid down by the rules for trap or skeet shooting. This term is used by many when speaking of 16 yard targets shot at trap.

**RIGHT QUARTERER**—A target or bird flying to the right of shooter or the right of center of the shooting range.

**ROUND**—25 targets.

**SKIMPY BREAK**—A target which is split in half or only has a small piece out of it.

**SLOW PULL**—Where the trap puller does not pull the target quickly in trapshooting.

**SQUAD**—Usually 5 shooters, but actually number of shooters participating in turn at the firing line one after the other.

**STRAIGHT AWAY**—A bird or target flying directly straight away from the shooter.

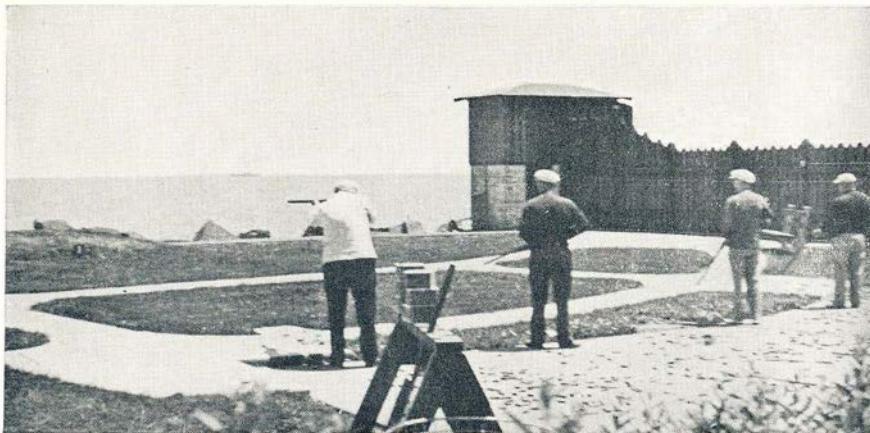
**STRAIGHTS**—Refers to all targets broken in series or continuous shooting.

**TIES**—Those making the same scores in any given rounds or events.

**YARDAGE**—The different yards back of 16 at which the shooters stand in trapshooting handicap events.

**YARDS RISE**—The distance the trap is from where the shooter stands.





Trapshooting is at its best at the Lincoln Park Traps in Chicago with Lake Michigan for a background and a natural rustic atmosphere which is most attractive for any form of shooting sport.

## CHAPTER III

# Clay Target Shooting

### PART I—HOW TO SHOOT AT THE TRAPS

**T**RAPSHOOTING is the oldest and best-established of the modern gun games. With a half-century of growth in substantially its present form, it has a background equalled by few American sports. It is the only sport whose governing body owns its national tournament grounds, the permanent home of its parent association, the Amateur Trapshooting Association, near the center of the nation's population at Vandalia, Ohio.

There is a strong competitive element in trapshooting which attracts and holds experienced shooters, at the same time offering an inducement to new shooters in the simplicity of its rules and the sporting characteristics of its shooting events. Briefly, there are three classes of events in the present-day trapshooting set-up, these being:

- (1) Single targets at 16-yard rise, five shooters to the squad, firing from positions three yards apart.
- (2) Single targets at handicap distances, from 16 to 25 yards rise, firing from positions on lines extended from the trap through the normal 16-yard positions.
- (3) Double targets at 16-yard rise, firing from the same positions as 16-yard single targets.

Any novice at the shooting game, or any field shooter seeking all-year-round employment for his shotgun, may well join his local trapshooting club and participate in its practice shooting and regular tournaments. There is no better place on earth to develop steadiness of nerves and a grooved shooting



**MARK ARIE**, Champaign, Illinois, so well applied his ideal trapshooting form as to win more than \$50,000 in cash and trophies with the standard-grade repeating shotgun he is pointing in the above picture. Note that Mr. Arie, like all other trapshooters pictured in this manual, shoots with feet close together, body slightly forward from the waist, and arms in the best position to control the movement of the gun. The gun pictured is a repeating shotgun by Marlin Firearms Company.

technique than at the traps. These attributes of a sound basic style may be put to good use in other forms of shooting—although it must be admitted that trapshooting gets under the skin of its devotees, and in this sense, is a jealous mistress.

However, most of the shooting clubs of the country are now combination clubs, offering Skeet and other shooting games in combination with trapshooting. Many such clubs hold annual all-around championships, including all three classes of trapshooting, Skeet shooting, and one or more of the newer gun games, such as tower shooting, the "quail shoot" at multiple-rise targets, and even the "field walk" with targets appearing suddenly from unexpected places. Broadening of the scope of most shooting clubs to include two or more

## CLAY TARGET SHOOTING

types of target shooting has contributed in large measure to the growing popularity of shooting sport among all classes in all sections of the country.

Your equipment for trapshooting need consist only of a gun, a coat or sweater permitting free use of the arms and shoulders in the act of firing, a pair of comfortable shoes, and shooting glasses. Hundreds of thousands of Americans who never have shot at the traps possess complete equipment for trapshooting in a standard repeating, automatic or double gun with at least one full-choked barrel; in old and comfortable clothing and shoes ordinarily worn for outings; and finally, in a pair of sun glasses used in driving the family motor car. It is not now, and never has been, necessary to make a heavy investment in guns and equipment in order to shoot winning scores at the traps. Mark Arie, the veteran gunner of Champaign, Ill., won more than \$50,000 worth of prizes in trapshooting using the same standard repeating shotgun which cost originally less than \$50. Ben F. Cheek, of Clinton, Ind., won the Grand American Handicap with an automatic type field gun of standard grade.

Any of the standard modern shotguns of 12 gauge, capable of firing two shots, make satisfactory trap guns, while for shooting single targets only, the single-barrel single-shot special trap gun is favored by shooters who believe in specialized tools. Guns capable of firing two shots without mechanical manipulation are the side-by-side double, the so-called automatic, and the over-under double. The repeating types, while requiring manipulation to fire the second shot, are so positive and simple in their functioning as to offer no handicap to the shooter who practices with them a bit, and becomes familiar with their "pump" motion.

If your gun for trapshooting is a double of either popular type, the barrels may well be of different boring. That is, provided you are a reasonably fast shot. The very tightest of full-choke guns handicaps a fast shot at 16-yard single targets. All guns capable of placing 70 per cent or more of the shot pellets in a charge within a 30-inch circle at 40 yards are classified as full choke. Yet some barrels are tighter than others, ranging up as high as 80 per cent. While an 80 per cent gun is something to be dreamed about for handicap shooting, and for the second barrel of doubles, it so constricts the pattern at ranges up to 30 yards that a fast shot will miss many targets through a slight error in pointing at the 16-yard clays.

Targets fly 50 yards from the trap, and the shooter is 16 yards from the rise. This makes a total of 66 yards from the shooter's position to the point of fall of the target. If the shooter possesses sufficient skill to get on and break his clays within one-half of this distance, he will be breaking his targets at from 30 to 33 yards—some yards short of the orthodox 40-yard range at which choke-bored guns are intended to deliver a perfect 30-inch pattern. It is well, therefore, to have from 5 to 10 per cent difference in the boring of the two barrels of a double gun. Down to 65 per cent, or the so-called "improved modified", is satisfactory for the more open barrel, while the other—for handicap shooting and the second barrel of doubles—should be the tightest full choke it is possible to obtain.

If you desire to shoot at the traps with a single-barrel gun, whether a single shot or a repeater—simply make sure the barrel is a full choke—and

HANDBOOK ON SHOTGUN SHOOTING



**WALTER BEAVER** of Conshohocken, Pennsylvania, affords another excellent illustration of sound shooting form—feet well together, body slightly forward at the waist, left arm well under the gun and right elbow raised slightly from the side. Winner of many national titles and always a contender for high average honors, Mr. Beaver turns in consistently fine performances which serve to emphasize his excellent shooting technique. The gun is an over/under double by Remington Arms Company, Inc.

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then leave that barrel alone! Chances are it will not exceed 70 per cent in pattern density by more than a percentage point or two—and you need that full-choke density for handicap and doubles shooting. You can either "point out" your targets rather than "swing past", or you can intentionally delay the start of your swing in order to break your single targets out where the pattern gives sufficient spread. In any event, don't experiment with gun barrels after they leave the factory, since patchy patterns usually follow attempts to "open up" a barrel or to change its point of impact. Either learn to shoot the gun you have, or else dispose of it and obtain one to your own specifications.

One thing about which all authorities agree is that barrels for trapshooting should be at least 30 inches long. This length, in a repeater, is equivalent to 32 inches in a double or single-shot trap gun, because of the added length in the "receiver". The long barrel lengthens the sighting plane, making for more accurate pointing. It decreases muzzle-blast. Finally, it adds weight to the forward end of the gun, making for steadiness in swinging, and reducing recoil by adding to the total weight of the gun. Most guns built especially for trapshooting have a raised, ventilated rib, the object of which is to straighten out the sighting plane so that it becomes a straight edge, making for more accurate pointing. It also serves the purpose of elevating the sighting plane above the barrel or barrels, so that heat waves from the barrel on a hot day will not cause a mirage-like distortion of the target when viewed along the rib.

The point of impact of the charge from a gun to be used in trapshooting should be approximately six to eight inches high at 40 yards. In other words, the gun should place about three-fourths of the vertical diameter of the 30-inch pattern above the point of aim. The reason for this displacement of the pattern upward from the point-blank is to prevent covering up the target with the end of the barrel in obtaining a perfect hit with the center of the pattern. In swinging with the target, the flying clay must be in full view of the eye at all times. Granted that the target is being followed with the front sight, the actual muzzle of the gun will be considerably below the line represented by eye—front sight—target.

Raising the point of impact is accomplished by fitting the stock to the shooter to provide (1) more "pitch up" or less "pitch down", as the case may be, and (2), raising the eye above the back end of the rib by lessening the drop at the comb—or by raising the comb, if that sounds better. If you find you are having to "cover up" targets to obtain hits with the standard gun you are using for trapshooting, you can purchase a laced leather pad that fits over the middle of the stock and raises the comb nearly one-half inch. After applying one of these to a gun you are accustomed to shooting, you will find you have to "see daylight" under the target in order to break it cleanly. This is a healthy condition, as it requires you to follow the target with the front sight. You can't break many targets just pointing the axis of the barrels at the target.

The ideal trap gun should have a butt pad of rubber or leather, or both, with the butt side of the pad heavily corrugated, or faced with rough leather. The primary function of the pad is to ease the blow of the recoil against

your shoulder. But it serves a second important purpose in preventing the butt from slipping on your shoulder after you have placed it there. Nothing is so annoying as to have the butt of the gun slip away from the cheek on a right-angle shot, or to slip up or down when the butt has been placed carefully high or low on the shoulder to compensate for high or low-flying targets.

Curvature of the gun butt, after the pad is applied, is more practicable for trap guns than for any other type, although many shooters prefer to leave the butt finished flat to permit placing it high or low on the shoulder, as befits conditions. A curved butt may slip if the gun is mounted lower than normal on the shoulder, while its sharp "toe" will reduce bearing surface and permit "canting" if the gun is mounted high. A rubber recoil pad with the butt finished flat except for a very slight outward swell at the toe—the lower part of the butt, remember—is perhaps the best practice. However, be sure to take into account the slight swell at the toe in computing the pitch of the gun. Pitch upward caused by a long toe on the butt is not effective pitch. The flat section of the butt that actually comes in con-

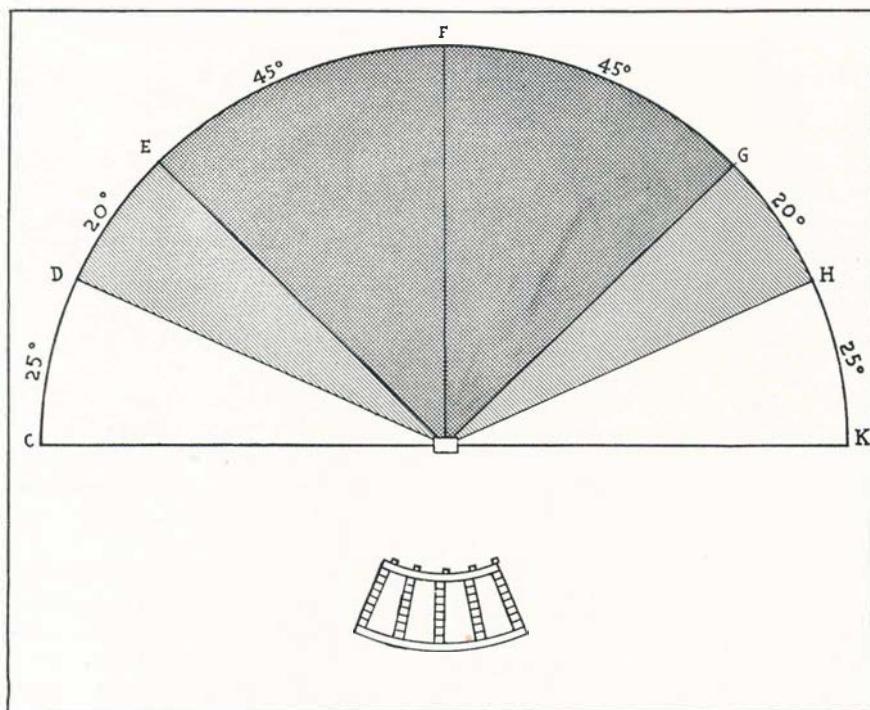


FIG. 15. The diagram represents a ground layout for trapshooting, the five shooting positions being shown below, while the possible angles of target flight are indicated on the semi-circle at the top. Legal targets may be thrown anywhere between "D" and "H" on the diagram, but most clubs eliminate the difficult extreme angles on the sides and throw their targets within the 90° segment between "E" and "G". In fact, the most common method of adjustment is to make the extreme left angle a straightaway from the right or No. 5 position, and the farthest right angle a straightaway from the No. 1 or left position. The computation of angles on this diagram with a lead pencil will divulge many interesting facts to shooters who have never taken the occasion to "engineer" the angles of target flight most common in trapshooting.

## CLAY TARGET SHOOTING

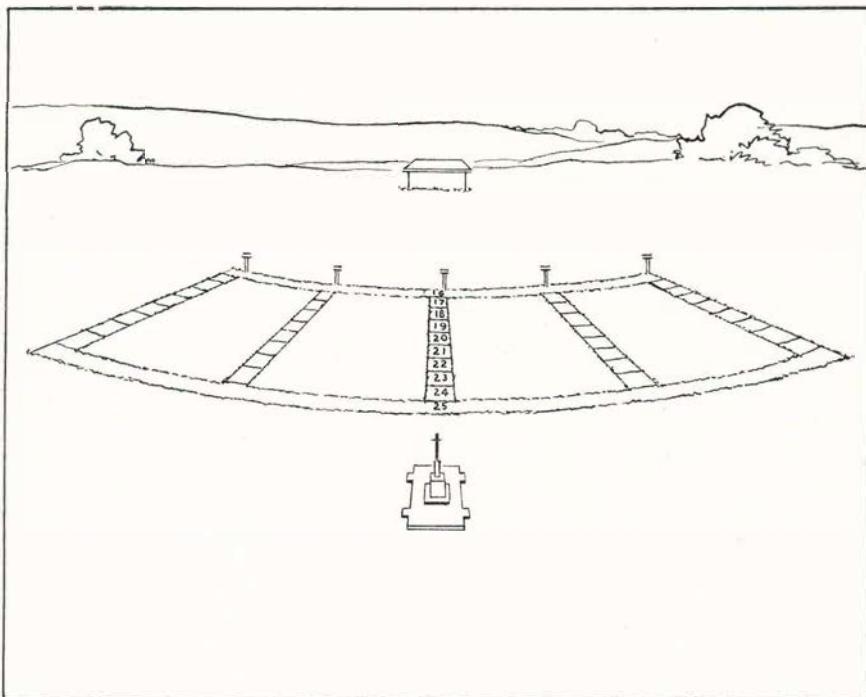


FIG. 16. This is a profile sketch of a standard trapshooting installation, showing the pull stand in the immediate foreground, the five shooting positions, and then, in the middle background, the trap-house out of which all targets will appear. By studying the sketch, any shooter can trace with pencil and ruler any angles of target flight common to trapshooting, even including an allowance for the elevation of the targets, which in this case will be approximately along the far horizon line beyond the trap-house. See Figure 15 for angular deviation of targets.

tact with the shoulder should be used as the base line for determining pitch, if the entire butt is not finished flat.

Assuming that you have satisfied yourself as to the suitability of your gun for trapshooting, study the layout of a trapshooting installation and the horizontal profile of that layout, as presented in Figures 15 and 16. You are impressed at once with the fact that only one trap is used, and that all targets appear from this one trap up over the edge of the trap-house that protects the trap operator. From the ground sketch, you observe that while it is possible that a target may be thrown at right angles to the line from shooter to trap-house—as for a shooter at Number 5 position in the case of an extreme right-angle target—actually, the target will not be crossing from left to right at right angles when the shooter faces the shot.

You know that a target crossing from left to right at right angles would be a "3-o'clock" shot on the vertical clock, requiring full lead or forward allowance. What is the full lead required for the extreme right angle at trapshooting, out where the shot-charge overtakes the target? The ideal way to figure it out is to apply the vertical clock method to each one of the five shooting positions. By all means start with single targets at 16-yard rise, and make all your computations from Figure 15. Do not, for the

present, include the entire field of the 130-degree segment in which legal targets may be thrown. Concern yourself only with the 90-degree field represented by the hatched area, since practically all targets are thrown within this area wherever standard trapshooting is practiced.

Since you have learned to work out the lead or forward allowance from the maximum downward in terms of half-lead, quarter-lead, etc., you will want to place yourself first in the position offering the shot requiring the longest lead. Study of the profile and the layout shows you that the longest leads will be at extreme right-angle birds from Number 5 position, and extreme left-angle birds from Number 1 position. Having been told that the shot from left to right is harder than one from right to left, you wisely choose Number 5 position and the extreme right angle as the one requiring the longest lead. So you work from Number 5 position, placing the zero of your vertical clock about three feet above the top of the trap-house, and somewhat to the right of its center, which is the closest point to the trap itself where the average eye can pick up the target.

You note that targets must be thrown between 6 and 12 feet above a point level with the trap and 30 feet to the front. This is an average of 9 feet. So the target will rise 9 feet in the first 30, and keep on rising until the pull of gravity levels out its flight, and then begins bending its trajectory toward the ground. From watching a few rounds at the traps, you note that every good shot in the squad is breaking his targets just before the height of the rise is reached. You will want to do the same thing so that you can swing your gun muzzle in a straight line—and not loop your swing, as you would have to do if you rode out your targets beyond the high point of their trajectory. This means, simply, that you can represent the flight of the targets by straight lines from your clock zero to the figures around the rim of the dial. It's so much easier that way!

From your simulated position at Number 5 post, you calculate the extreme right angle as a 2-o'clock target. Remember, the direction on your clock face takes into account *both* the apparent direction of the target and its apparent speed. Because all the targets will be rising, none can fly so low as to become 3-o'clock targets. Therefore, the clock dial serves as an automatic indicator of the obliquity factor. You estimate that the extreme right angle will be 30 yards—or 90 feet—from the gun at the point of impact. Assuming 800 feet per second as the average velocity of the shot-charge out to the point of impact, you compute the time of flight of the shot-charge as roughly one-ninth second. Assume the target speed is approximately 80 feet per second. Therefore, in the time it takes the shot-charge to reach the point of impact, the target will have moved one-ninth of 80 feet, or approximately 9 feet. This, then, would be the proper lead for a 3-o'clock target, computed by your known method.

Since your extreme right-angle target will be only a 2-o'clock target, you now use your clock dial as an automatic obliquity indicator. From the line zero to 12 o'clock—the vertical line up through the center of your clock face—a 2-o'clock target represents only two-thirds of the angular displacement of a 3-o'clock target. Therefore, your maximum or full lead will be two-thirds of 9 feet, or exactly 6 feet, considering the 2-o'clock target as

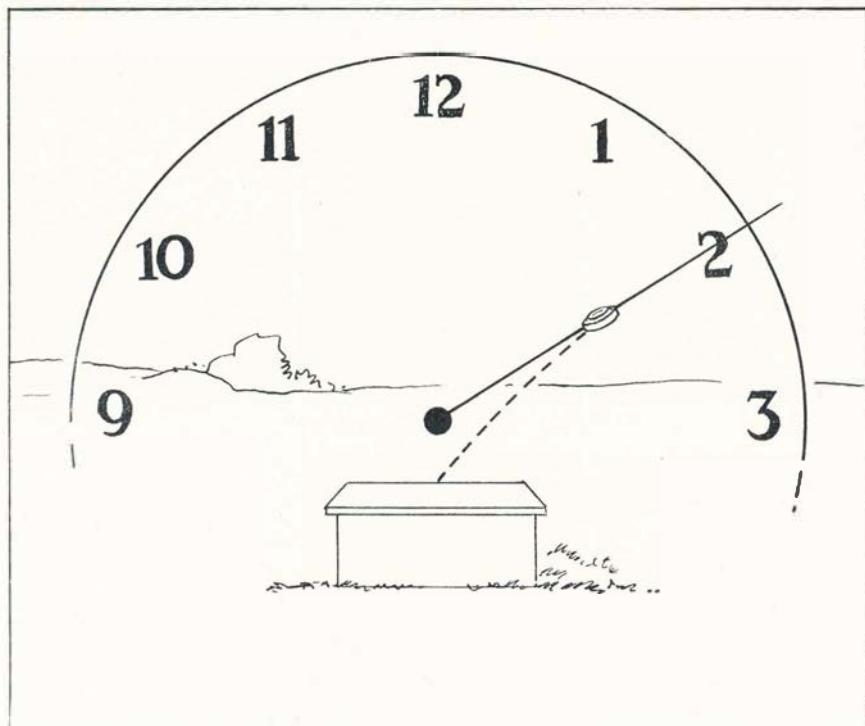


FIG. 17. The diagram shows the application of the vertical clock system to 16-yard and handicap trapshooting, the illustration being that of an extreme right angle from the No. 3 or middle position. In this position, the shooter will mount his gun to "cover" a spot immediately above the center of the trap-house—that spot where the target will cease to be a mere streak and will resolve itself into a plainly discernible disc. The target illustrated above comes out at an angle instead of as a straightaway, so the shooter merely swings his gun steadily along the line zero to 2 o'clock in order to overtake the target and break it easily, since by the time the gun swing overtakes the target, the trajectory of the latter will have flattened to conform to the zero to 2-o'clock swing illustrated by the black line.

calling for full lead in shooting at the traps. Splitting this figure, a 1-o'clock target will call for 3 feet, or one-half lead. A target between 12 and 1 o'clock would call for one-fourth lead. Out to the left of the center line, an 11-o'clock target would require half lead. From the Number 5 position, this is as wide a left angle as you could expect to get.

The time now has come to apply your clock dial to the actual shooting position. You immediately become cognizant of the fact that you have worked out your diagram from the Number 5 position, and that the squad-hustler has placed you at Number 2 post. What does it matter? Not one whit. In trapshooting, you are permitted to mount your gun before calling for the bird. Now mount it, point it at your zero spot 3 feet above the top of the trap-house, and hold it there until your eye becomes conscious not only of the outline of the front sight, but of the actual direction of the sighting plane.

As you stand there, ready to call "Pull!", you will suddenly realize that the sighting plane of the top rib—or tube—actually represents the zero—

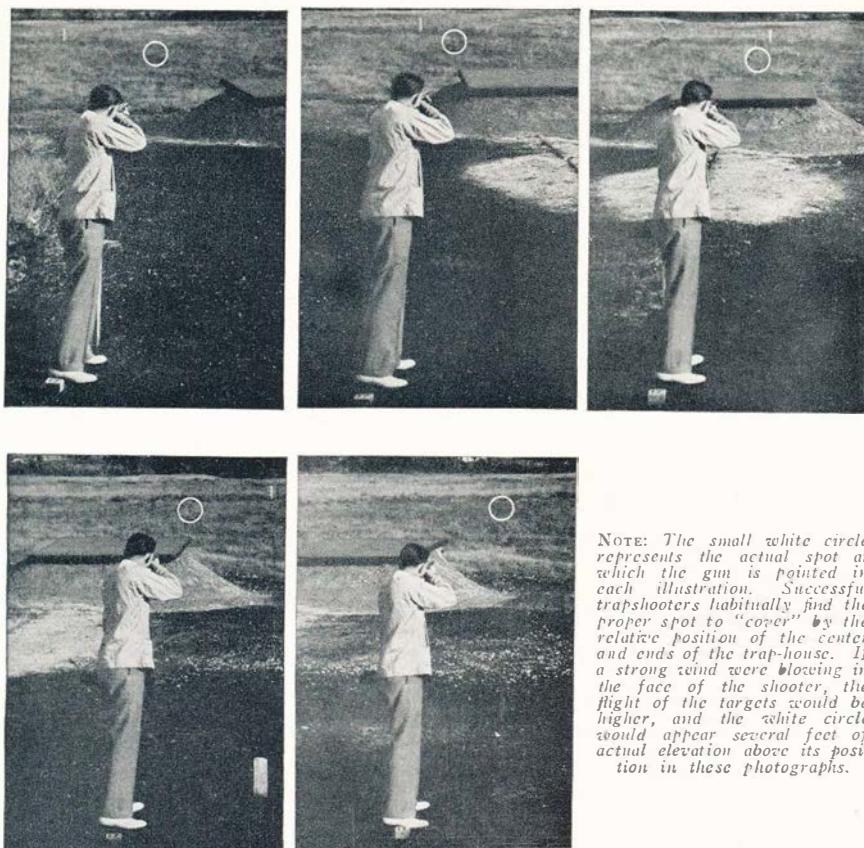


FIG. 18. The five photographs above show the proper shooting position for the five stages at single and handicap trapshooting, beginning with position one at the left above and continuing successively in order to the right. Note that in position one, the shooter divides the area where he can expect the target to appear, and actually is pointing his gun to the left of the corner of the trap-house. In the second photograph, representing position two, he is likewise dividing the area in which he can expect the target to appear, but since it will be impossible for him to obtain as wide a left angle from position two as from position one, his gun is trained upon the left corner of the trap-house—not to the left of the trap-house as in the first photograph. The third photograph shows the correct shooting position for position 3, from which a straight target from the trap is a dead straightaway. Accordingly, the gun is trained a few feet above the exact center of the trap-house, where the shooter will have the smallest possible arc through which to swing should the target be a straightaway or a right or left angle. The photographs illustrating positions 4 and 5 are simply the opposite of those illustrating positions 2 and 1, since the shooter has progressed to the right hand of the trap-house rather than the left, from whence he started.

12-o'clock line of your clock face. The target can not get out of the trap-house without forming a visible angle between its own path and your sighting plane. Since your eye is at the apex of the angle, you can estimate it instantly as a 1-o'clock, a 2-o'clock, or a 12-o'clock target. Furthermore, its trajectory originates so nearly at your zero point—or point of aim—that you can follow it with your swing straight to 2 o'clock or 12 o'clock, as the case may be.

Once you have learned to estimate the angle of the target's flight by the relationship of its path to the sighting plane of the gun, you can forget

*NOTE: The small white circle represents the actual spot at which the gun is pointed in each illustration. Successful trapshooters habitually find the proper spot to "cover" by the relative position of the center and ends of the trap-house. If a strong wind were blowing in the face of the shooter, the flight of the targets would be higher, and the white circle would appear several feet of actual elevation above its position in these photographs.*

whether you are at Number 2 post, or at Number 5. It is the angular displacement of the target from your sighting plane that counts. You will learn quickly to estimate this displacement as a figure on the clock dial to left or right—calling for one-half lead or whatever the displacement may be. Having learned to estimate the displacement, you are on your way to becoming a high-scoring trapshooter—after you have learned to assume a position that will permit you to swing with the target through the full arc of gun swing required.

Do not try to “guess” the trap, which means simply to attempt to forecast the direction of the next target by the position of the last one. Traps and trap-boys have a nasty habit of crossing up shooters who attempt to beat the game. But aside from this, to guess the trap will destroy the advantages of the clock method in shooting at the traps—or in any other kind of shooting. It is absolutely essential that the gun muzzle remain steady at the zero point until after the angle of the shot has been evaluated clearly in the shooter’s mind. To guess the trap invariably means a false movement of the gun before the shot has been classified as a 2-o’clock shot, or what-have-you.

If you make such a false motion, you will not only have to begin your swing anew from an unknown position of the gun—you will have no sighting plane to use as a base for estimating the actual angle of the target. So—don’t move the gun until the target has proceeded far enough in its flight to permit positive evaluation of the angle of the target with the sighting plane of the gun. Do not be deceived by the apparent speed with which good shots get on their targets. They are merely blessed with good eyes and unusual co-ordination of all muscles of the body. They actually estimate the direction of the target before moving the gun—just as you must do if you expect to learn to shoot.

While angular displacement from any post can be estimated by using the sighting plane as the center line, it *does* make a difference in the gun swing from which position you are shooting. Going back to Number 5 position, you note that the longest gun swing will be required for the 2-o’clock bird—the extreme right angle. Absolutely no lateral swing is required for a 12-o’clock bird, and from Number 5 position, at most clubs, the extreme left angle becomes an 11-o’clock bird. (See Figure 18.) Thus, you must be prepared to swing sharply and long on the right, but only sharply and up on the left. This brings up the question of facing the shot—and the rule is to face the shot at the middle point of the field in which you may be required to break the target.

Study Figure 18, which shows the proper positions of the feet to face the shot at each of the five posts in 16-yard trapshooting. Taking Number 5 position as an example, you will see that the middle of the field in which you must prepare to break the target is about half-way out to the point of impact on a 2-o’clock bird. This means you will actually face at 1 o’clock, then pivot to the zero position as you mount your gun. The movement places your underpinning under just enough torsion to start the swing quickly to the right should a 2-o’clock bird appear. If the bird actually is a 12-o’clock bird—or even farther to the left, if the club officials insist on

throwing extreme angles—you will not be so unbalanced as to disturb your swing to connect with the 12-o'clock or 11-o'clock target.

You have now learned the proper leads—both in terms of feet and in terms of fractions of full lead—and the proper positions to swing freely in order to register those leads as hits on the target. There now remains merely the question—how do you determine what is a full 6-foot lead without some sort of angle-measuring device?

The question is a fair one, and in its answer lies the difference between a good shot and a poor one. Estimation of leads is the mark of the expert gunner. It takes very little mathematical ability to compute that a lead of 36 inches—or 3 feet—at the target requires a lead of one inch at the gun muzzle, since the range to the target—30 yards, or 90 feet—is approximately 36 times the length of the sighting plane of your gun. It *does* require a fine sense of gun pointing to set off that one-inch lead at the gun muzzle, because the target is headed for the horizon, and there is no time for checking and re-checking such small measurements against the target during its flight.

From the beginning of wing shooting, one mechanical device after another has been invented to reduce lead at the gun muzzle, to mathematical values. Sights have even been invented, in something of the form of the horns of a Texas steer, to provide an actual linear measurement of the lead. No champion gunner of these times uses such a device, simply because the speed of any flying target permits the estimation of leads in approximate values only. Some gunners profess to evaluate leads at the gun muzzle in terms of the width of the top rib, of the tube or tubes, or some other definite measurement which can be converted into a factor representing lead at the target. In the last analysis, every shooter must learn for himself the proper amount of daylight to leave at the side of his front sight to produce the right amount of lead at the target.

There is much to be said in favor of modern developments of sighting devices, such as the so-called "muzzle bandage" in Skeet shooting, and the block front sight in trapshooting. The block front sight is a square post one-quarter to one-half inch in width, attached to the middle of the rib or tube, and preferably white in color. Holding ahead of the target the full width of a half-inch block sight would produce a 50 per cent over-estimation of one-quarter lead, which we have found in the case of trapshooting to be one-fourth of 6 feet, or 18 inches. A 12-o'clock shot would have to be centered at the top of the block, which isn't so difficult if you adopt this innovation, and stick with it.

The recommendation of the best shooters of our day is to use a large, plainly-visible front sight, usually in combination with a middle sight. If the gunner can always retain the front sight in full view, he will have no difficulty in estimating leads. In fact, this estimation will become purely mechanical if he learns to estimate the apparent direction and speed of the target by the clock method. His brain commands, "2-o'clock shot!", and he mechanically swings and lets off the gun for a 2-o'clock shot. If you ask another the exact lead he takes on certain targets, he will usually reply that

## CLAY TARGET SHOOTING



STANLEY MEADOWS of Des Moines, Iowa, one of the outstanding young trapshooters of America, follows in the footsteps of older and more experienced gunners in the adoption of ideal shooting form. Again in the photograph above check the four principal points involved in correct shooting technique—and you will find that Mr. Meadows classifies along with other great trapshooters in the perfection of sound shooting form. The gun is a repeating shotgun with raised ventilated rib by Remington Arms Company, Inc.

he doesn't know. He simply swings, points and pulls the trigger for a certain type of shot—and that's all there is to it.

Until such time as he has learned to change from one system to another without disturbing his timing, the "pointing out" system should be used by every new shooter. This system will have to be followed in handicap and double targets, so there is no use complicating matters by "swinging past" 16-yard targets and "pointing out" the others.

### DOUBLE TARGETS

Double targets are shot from the 16-yard positions, are thrown simultaneously, and usually so regulated that the right target is a straightaway from Station 1, and the left target a straightaway from Station 5. At Stations 2, 3 and 4, no target is a straightaway, although at 2 and 4, one will be nearer a 12-o'clock target than the other.

The trick in good doubles shooting is to shoot at *both* targets before either one begins to fall from the high point of its trajectory. This is easy for the first bird, since the exact path each bird will follow is known, and the shooter can align his sighting plane almost exactly at the spot where he will break the first target. Thus, practically no swing at all is required to register on the first of the pair—the problem is to swing quickly enough to break the other before it begins to fall off its trajectory. Waiting too long requires a definite lead *under* the second target. Catching the first target during the climbing section of its flight permits shifting the gun from the first target to the second with a short, level swing to 9 o'clock or 3 o'clock, as the case may be.

In this shooting, a slightly open first barrel is an advantage. The first target obligingly flies right into the pattern, and can be "shot off the top of the trap-house", if the shooter's eyes and trigger reaction are fast enough. Position and balance are of prime importance, since the actual swing must take place while the shooter is recovering from the recoil of the first barrel. To this end, the shot to be faced in taking position is the second shot, not the first.

In swinging to 3 or 9 o'clock for the second target after breaking the first, the line of the gun swing will be at greater variance with the path of the target than is the case in other forms of trapshooting. However, if properly timed, a purely lateral lead will break the second bird. If the shooter's timing is too slow to intercept the second target at the top of its flight, he must change direction of his gun swing, and the 3- or 9-o'clock target becomes a 4-o'clock or 8-o'clock shot instead. Obviously, in such a case, there is an elevation factor in the lead—and that factor is *under*.

Your own timing will be the measure of your success at doubles shooting. It is the hardest test of skill known to trapshooting—and as such, it is not so popular as 16-yard singles or handicap. For that reason, every shooter should aspire to become a good shot at doubles. It is a mark of distinction worth wearing.

### TRAPSHOOTING HINTS

Do not squeeze the trigger of a shotgun in trapshooting—slap or pull it sharply. Some of the nation's best shots are trigger-slappers. Any method of releasing the trigger which does not stop or cant the gun is the proper method for shotgun shooting. The orthodox trigger squeeze employed by rifle and pistol shooters is too slow for the shotgun.

Wind in the face of the shooter means high targets. Mount the gun with the butt low on the shoulder, to further raise the point of impact. Wind from behind the shooter means low targets. Mount the gun with the butt high on the shoulder, to lower the point of impact.

Wind from the left usually means high left angles, low right angles. Face

the shot farther to the left because of the possible greater stretch upward for an extreme left angle. Reverse is true with wind from the right.

Don't make quick, disturbing motions with body or gun in taking your position. Do your dipsy-doodling somewhere else.

Don't bounce into the call of "Pull!" Some day your recovery from the bounce will be so out of time that you'll miss them all.

Note that most good shots stand with feet close together—not spraddled out. Many good shots stand perfectly erect.

Obey the safety rules implicitly. Always have the action of your gun *open* except on the firing line. Never point a gun from behind the firing line.



HALE C. JONES of Wood River, Illinois, differs in his shooting stance from most other great trapshooters only in leaning slightly more forward from the hips in order to obtain better vertical control of the movement of his gun. Many high national honors and high average performances testify to the soundness of Mr. Jones' shooting form. The gun is a single-barrel trap gun with raised ventilated rib by Ithaca Gun Company, Inc.

Shot shells are loaded 25 to the box to permit the firing of five shots at each of the five positions in trapshooting. If you use a shell pouch, use one that takes the box, and thus preserves the alignment of the shells as five to the row.

Call "Pull!" in a clear, loud voice. Don't expect the trap-puller to be a mind-reader. Give him a chance to throw perfectly timed targets.

Don't shoot too much. Your own endurance will determine when you have had enough. Tired muscles refuse to react properly to mental commands, timing suffers—and your scores go blooey. Unless you are capable of shooting through an entire tournament program, enter only those events which will not over-tax your strength.

Be sure to consult an oculist if your eyes are not perfect. A rating of 20/20 for the master eye may be classed as perfect for shooting, even if the other eye is weaker. Then there never is any argument between the eyes as to which is master.



Comprehensive multiple-field layouts are utilized for the annual National Skeet Tournament, such as the installation pictured above at the Southern Hills Country Club, Tulsa, Oklahoma, for the 1938 classic.

## PART II—HOW TO SHOOT SKEET

Skeet is another competitive gun game which has achieved national competitive proportions in the past decade. Originally developed as a substitute for field shooting, it employs shotguns of open patterns as contrasted to the close patterns required in trapshooting. All of its shots are offered at closer range, with the targets taking on greater apparent speed than is the case in trapshooting. Other basic points of difference in the two sports may be classified as follows:

Two traps, one in a "high-house" and one in a "low-house", are employed in Skeet shooting, as against only one trap at ground level in trapshooting.

Skeet traps throw targets along fixed lines of flight, as compared to the variable angles of flight employed in trapshooting.

## CLAY TARGET SHOOTING

Skeet employs eight different shooting positions, from each of which one shot is fired at a single target from each trap-house. This is contrasted to five shots at single but unknown-angle targets from each position in trapshooting.

Four pairs of doubles are fired in each round of Skeet, one each from Numbers 1, 2, 6 and 7 positions. Trapshooting does not mix double and single targets in the same round.

Skeet targets appear after a variable delay of up to three seconds, as contrasted to the instantaneous release of the target at trapshooting.

The twenty-fifth shot at Skeet may be fired from any shooting position if the shooter breaks the first 24 targets of the round; or, if a miss occurs, the odd shot is fired as a repeat shot at a duplicate of the first missed target.

Skeet requires the holding of the gun in a ready position, with part of the stock showing under the forearm of the trigger hand, as contrasted to the set position of trapshooting with the gun mounted, ready to fire.

Study of the profile and the ground layout of a Skeet field as shown in Figures 19 and 20 will give a clear insight into the type of shots offered at each position in this fascinating gun game. It is clearly apparent that at the crossing point of the two lines of target flight, out beyond Station 8, targets from both trap-houses will be equi-distant from all stations from 1 to 7, inclusive.

Because any gun used for Skeet will give a uniform pattern at a constant range, it is considered the best form in Skeet shooting to break all targets approximately at the crossing point of the two lines of flight. Actually, targets going away from the shooter will be broken before this point is reached. Similarly, targets coming in to the shooter will be broken a little past the crossing point—which means on the side nearer the shooter. This variation accounts for the use of the word “approximately” in describing the accepted point of breakage of Skeet targets—just as there is a variation for different persons in the point of breakage of targets at trapshooting. Suffice it to say that any gun which gives a target-proof pattern at 20 yards is an ideal gun for Skeet.

Most American sportsmen own a 12-gauge field gun with at least one barrel bored to this approximate requirement. True, the shooting of four pairs of doubles in each round of Skeet presupposes that your gun for Skeet must be capable of firing two quick shots. This rules out the specialized single-barrel gun used for single targets in trapshooting, but admits all other popular types—side-by-side double, over-under double, automatic and repeating shotguns. In the case of guns with a single barrel, the degree of choke known as “improved cylinder” is approximately correct for Skeet shooting. In the case of double guns, one barrel should have this approximate boring, and this barrel should be used for all single targets. The ideal condition is reached in a double gun when both barrels have this approximate boring.

However, in addition to 12-gauge shotguns, Skeet affords opportunity for the employment of smaller, lighter guns, running the entire scale of modern shotguns from deep bass to high soprano. There are four competitive classifica-

## HANDBOOK ON SHOTGUN SHOOTING

tions in Skeet, based on the charges fired from guns of different size, as follows:

Sub-small bore: Requiring a gun of .410 bore and restricting the shot-charge to  $\frac{1}{2}$  ounce and not smaller than size 9.

Smallbore: Requiring guns of .410 bore or 28-gauge, and restricting the shot-charge to  $\frac{3}{4}$  ounce and not smaller than size 9.

20-Gauge: Requiring a gun of 20-gauge or smaller, and restricting the shot-charge to  $\frac{7}{8}$  ounce and not smaller than size 9.

All-bore: Permitting any gun up to and including 12-gauge, and restricting the shot-charge to  $1\frac{1}{8}$  ounces and not smaller than size 9.

From the foregoing classification of guns adapted to Skeet shooting, it is apparent that Skeet is an ideal game for the man, woman, boy or girl who loves to shoot for the sport's sake—and aside from any competitive inducement. Competition merely lends added charm to Skeet, once its routine has been mastered by the beginner. It is a more sociable game than trapshooting, since there is always the opportunity for the exchange of a word of congratulation or condolence as all but one member of the squad await their turn at each post in the "squad box."

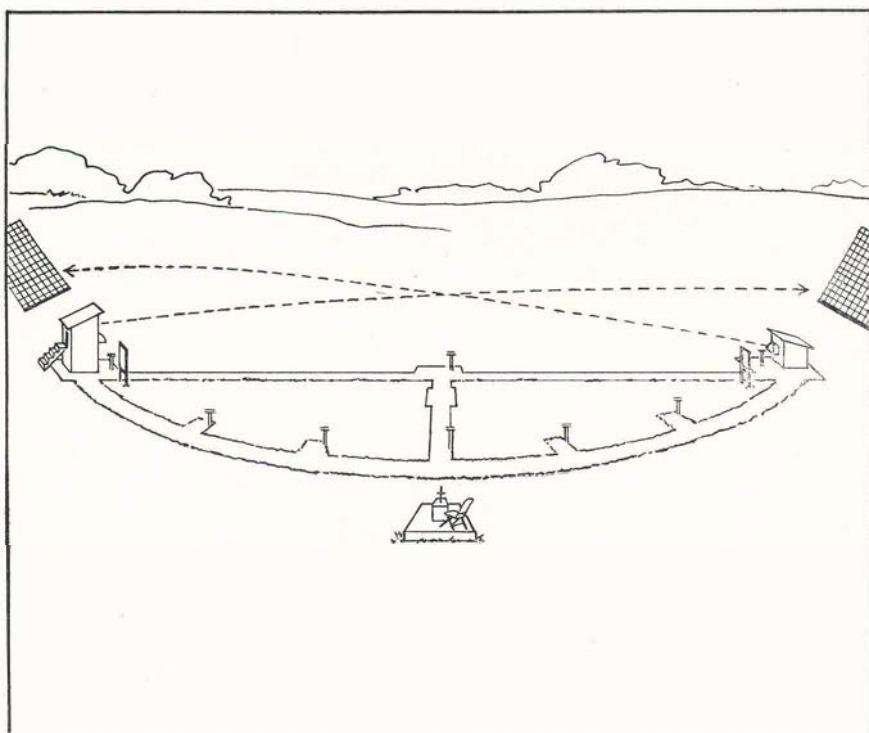


FIG. 19. The diagram represents the profile of a Skeet field as viewed from a point exactly in rear of the pull stand behind Station No. 4. The dotted lines represent the flight of the targets from the high- and low-houses and the crossing point out beyond Station No. 8 where outgoing targets should be broken is indicated clearly by the crossing of the lines. By placing himself at each of the shooting stations in this sketch, the student of Skeet shooting can analyze each shot as it actually appears on a standard Skeet field, even to the point of working out theoretical leads which, if applied intelligently in actual shooting, will serve to produce better results.

## CLAY TARGET SHOOTING

The way to begin to shoot Skeet is—to begin to shoot Skeet. Reasonable dexterity in handling a shotgun should be acquired in one's own back yard, or one's bedroom, before attempting to shoot targets of any kind. Once the beginner knows a little something about gun handling, he may be sure that he will not be scorned on any Skeet field in all the world. His very desire to shoot Skeet places him in the charmed circle of those who *belong* in the sport. At every gun club, he will find a trade representative or an official of the club who will be glad to take him in hand, teach him the simple routine, and help him thereafter with his shooting problems.

No special equipment is necessary to shoot Skeet. A field gun with at least one open barrel, an old coat or sweater, a pair of comfortable shoes, a pair of sun glasses to serve as protection to the eyes from sun glare or dust—these are sufficient for full enjoyment of the sport. Just as in trapshooting, some devotees of the game eventually invest in a special gun, such as a double with both barrels bored the same. Or, the confirmed Skeeter may desire to own an assortment of guns which will permit him to compete in all classifications in his club tournaments or other big shoots.

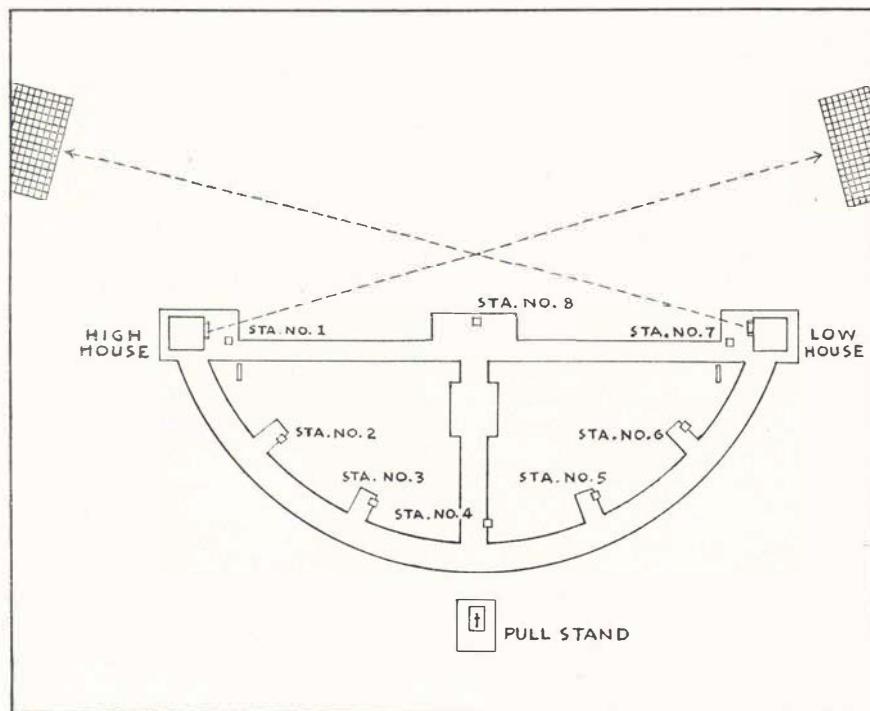


FIG. 20. The diagram shows the ground layout of a standard Skeet field. Shooting positions are indicated as Stations Nos. 1, 2, 3, etc. On all outgoing targets, from any station, the target should be broken at the crossing point out beyond Station 8. Incoming targets ordinarily will be broken on the near side of the crossing point. Thus, both shots from any station represent practically the same length of gun swing, through the same arc, but in reverse directions for the high- and low-house.

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**JACK LINDSEY** of Okmulgee, Oklahoma, winner of many national honors at Skeet, illustrates a perfect "ready" position in the above photograph. It will be noted that Mr. Lindsey, like most other great Skeet shooters, stands with his feet farther apart than is the case with most trap-shooters, this change in orthodox shooting form being necessary because of the wider lateral swing necessary in the mid-field shots at Skeet. The gun, equipped with Cutts Compensator, is a repeating shotgun by Winchester Repeating Arms Company, Division of Olin Industries, Inc.

Special barrels and additional guns may well be considered by the beginner only after he has become accustomed to the routine of the sport, has begun to break a fair percentage of his targets, and knows the reason for his misses. Missed targets in Skeet shooting can hardly be blamed upon the gun or ammunition, unless the timing of the shooter is so slow that he is riding out his outgoing targets far beyond the crossing point. If targets are taken in proper time, any gun with modern ammunition will break Skeet targets—if the hold is right.

Thus, the new shooter should expose himself to the Skeet microbe, and let nature take its course. Very probably, if he takes the analytical approach to his sport, he will find the elusive targets a challenge to his personal efficiency—and thereupon become a convert for life. Considering the fact that Skeet is comparatively inexpensive, that it has a pronounced social side, and that it is ideal training for upland game shooting, its devotees get out of the game a great deal more than they put in.

Having determined to have a whirl at Skeet shooting, the beginner—as in the case of trapshooting—should go to a Skeet field and watch the firing of a few rounds before he attempts to do any shooting of his own. It is better to make this first visit in company with a friend who will be glad to explain the sequence of the various shots, progressively, from station to station. The beginner learns at once that 16 shots are fired at single targets from Number 1 position around to and including Number 8, with the shooter firing first at the single target from the high-house at each station. Then come the four pairs of doubles—and the beginner notes that in doubles, the outgoing bird is broken first, then the incomer.

The two shots at Number 8 post, right in the middle of the field, always intrigue any shooter watching Skeet for the first time. It appears, at first observation, that the targets are whizzing past the shooter's head so rapidly that chain-lightning speed in gun pointing is necessary to break them. It is only after he has fired a few rounds that the beginner learns the trick of shooting at Number 8 station. This trick is a gun swing restricted in its arc in direct proportion to the shortening of the period of time through which the target is visible. Both shots at Number 8 are perfect examples of the "swinging past" method of gun pointing. The target is going so fast that the shooter does not have time to maintain a measured distance in front of it. All he can do is overtake it from behind with a short, quick swing, and pull the trigger as the muzzle passes it. The invariable result—a broken bird.

The fact that Skeet targets from either house proceed along a fixed line of flight, and that from several shooting positions, there is no time to obtain and hold a prescribed forward allowance, makes the "swinging past" method of gun pointing ideal for Skeet shooting. Most Skeet shooters use the "swinging past" method from all positions. Some few of the better shots use the "swinging past" method from all stations except Numbers 3, 4 and 5, where the targets from both houses fly more nearly at right angles to the shooter, and where the greater angular displacement permits the holding of a definite lead ahead of the bird. These, accordingly, are "pointed out".



FRANK R. KELLY of West Orange, New Jersey, has achieved many national Skeet shooting honors through the application of the sound shooting form illustrated in the above photograph. The quality of alertness—of being prepared for the impending release of the target—is outstanding in this photograph. The gun, equipped with Cutts Compensator, is an auto-loading shotgun by Remington Arms Company, Inc.

If your reaction time is fast enough to shoot all outgoing or crossing targets before they reach the crossing point, by all means use the "swinging past" method for all shots at Skeet. If your reaction time is so slow that you must ride your targets beyond the crossing point, then you must perforce use the "pointing out" method. The full force of the spring is still driving Skeet targets forward very rapidly out to the crossing point, and there is little danger of wind deflection—even in a strong gale. Beyond the crossing point, a heavy breeze will deflect Skeet targets, and it is necessary to follow their rising or dipping if you ride them out. Hence, the "swinging past" method is the ideal,

## CLAY TARGET SHOOTING

with all targets being broken before they lose the first impetus of their rapid flight. This makes for snappy timing, and puts into Skeet shooting the one quality that makes it outstanding among gun games—that quality best described in sports language as “dash”.

Application of the vertical clock system to Skeet shooting, using the “swinging past” method, actually is much more simple than in trapshooting, in spite of the fact that two traps are used instead of one. There are two constant factors in Skeet shooting which simplify the gun-pointing problem, as follows:

The target from each house always follows the same path, and always is broken at approximately the same point in its flight.

The target from each house always appears in the same position—because the targets from the same house follow the same path—and thus the angle formed by the line of flight of the target, with respect to the sighting plane of the gun, is known beforehand, and does not have to be estimated instantly as in the case of trapshooting.

Assuming, then, that the new shooter desires to develop a dashing, snappy style, and break his targets close to the crossing point, it is only necessary for him to place his feet to fire comfortably in the approximate direction of the

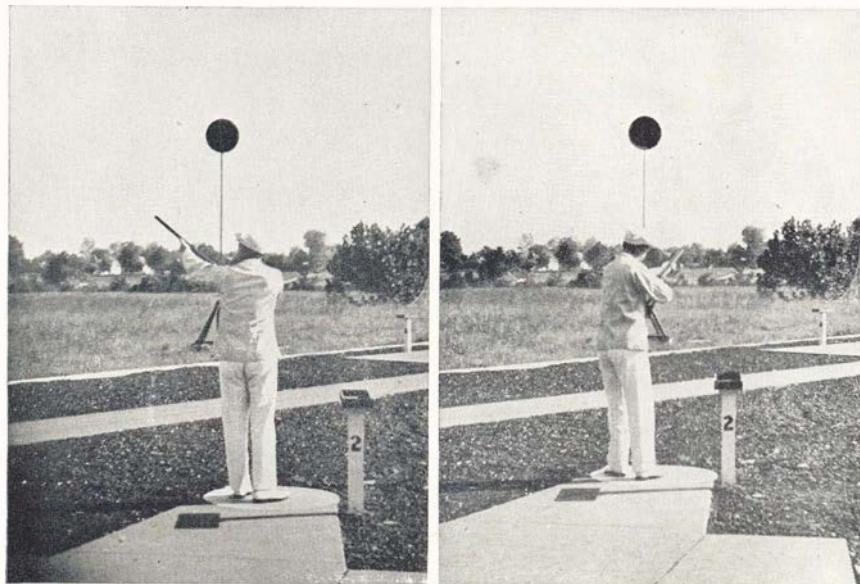


FIG. 21. The photographs illustrate both shots from Station No. 2 at Skeet—the left photograph showing the shot from the high-house, the right photograph that from the low-house. The shot-charge will be delivered at the exact spot indicated by the black disc in the background, this disc being 30 inches across and representing the exact size and location of the pattern the shooter will attempt to place upon the target at this point. From the left photograph, note carefully the perfect shooting position for the high-house target, with muzzle of gun high and every muscle of the shooter ready to “cover” the zero point of the vertical clock which his eye will visualize as the target appears from the chute. Contrasting the position of the shooter in the right-hand photograph, note that the target from the low-house will require a rapid swing to the upper left so that the muzzle of the gun is held lower and the body is bent forward slightly to provide quicker control of the shooter's elevating mechanism.

crossing point, and then pivot his body toward the proper trap-house to pick up the target as it emerges from the chute.

This point of emergence, for all practical purposes, is a point about 10 feet in front of the trap-house opening. The average shooter will not be able to pick up the target any quicker—it will be going too fast to register on the eyes until this point on its trajectory has been reached. It will be foolhardy, therefore, for the person of average eyesight to turn his body all the way to the trap-house, and fix his eye upon the chute opening, because he will always be “behind” his target—as they say in baseball when a fast-ball pitcher is smoking them through.

The conclusion is easily reached that the zero of the vertical clock face—the point to be centered by the eyes, and upon which the sighting plane of the gun is brought to bear in the act of pivoting—is the nearest point to the trap-house where the shooter can see the target clearly and plainly as a distinct object—not as a black line streaking through space. More will be said about the important functions of the eyes a little later on—after the shooter has learned to “face the shot” around the semi-circle embracing the first seven positions in Skeet shooting.

The process of “facing the shot” for each shooting position in Skeet may be reduced to two simple rules—one for the man whose timing is fast enough to break his targets at or before the crossing point, and one for the shooter whose

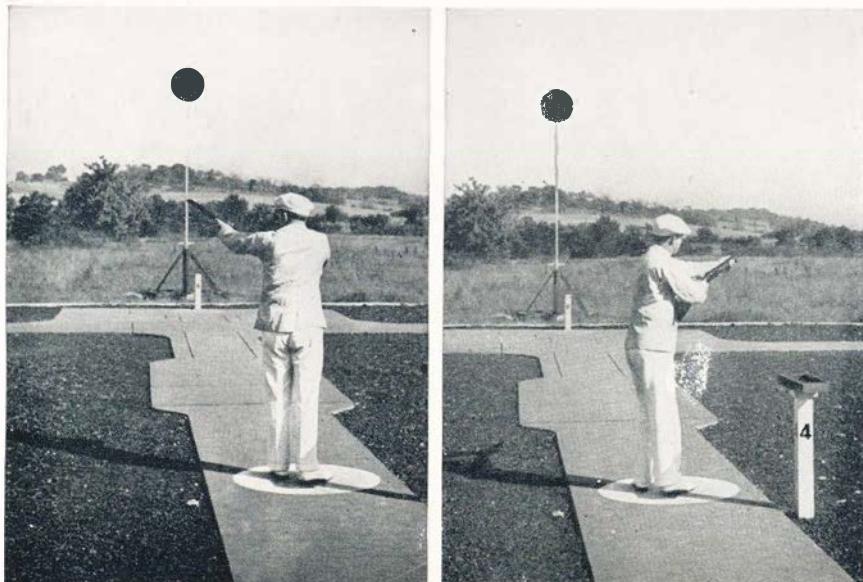


FIG. 22. Here are two photographs illustrating the two shots at Station No. 4 at Skeet, the photograph at the left illustrating the high-house shot and the one at the right, that from the low-house. Again note the high position of the gun barrel in the photograph at the left, where the target will appear at a high elevation, and where the gun swing will be practically horizontal from left to right. On the other hand, the gun swing for the low-house target will be upward as well as to the left, accounting for the lower gun muzzle and the slightly forward position of the shooter's upper body. Again in these photographs, the shot-charge in each case will be delivered at the point in space represented by the black disc, which is exactly 30 inches across and thus represents the size of effective pattern at the range where the target will be broken.

## CLAY TARGET SHOOTING

reaction time is so slow that he must ride beyond the crossing point. These rules may be summarized as follows:

Shooters with fast reaction time may "face the shot" at the crossing point for all single targets from Stations 1 to 7 inclusive. No change in the position of the feet will be necessary for high-house and low-house birds, provided the shooter swings all the way to the zero point for the proper trap-house in the correct sequence, thus creating the proper torsion in the limbs for each shot, whether the actual swing is to right or left.

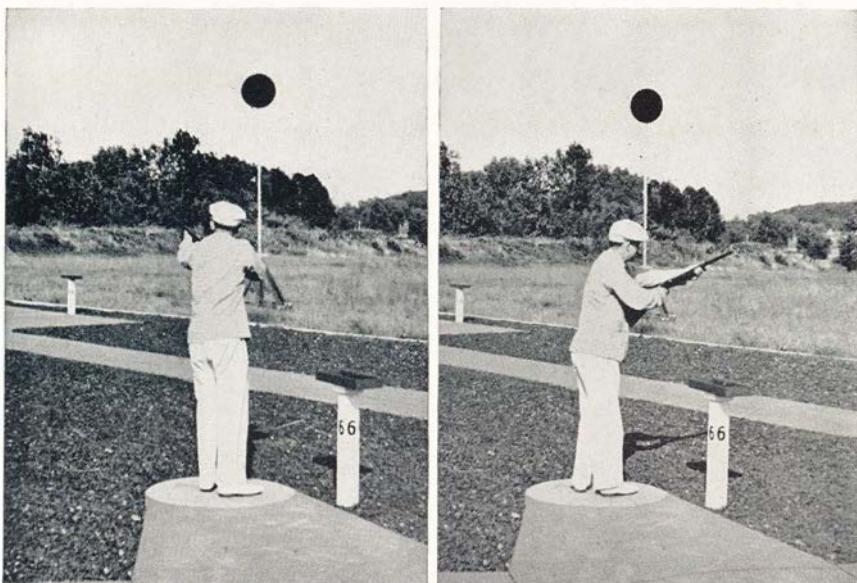


FIG. 23. Having progressed around to Station No. 6 at Skeet, the shooter finds it necessary to face well to the right to pick up the target from the low-house, as illustrated in the right-hand photograph. The photograph at the left illustrates the lack of tension in the shooter as he realizes he need not hurry to "pick up" the target coming from the high-house across almost the entire length of the field. In each case the shot-charge will be delivered at the exact point in space indicated by the black disc which in these photographs again represents a 30-inch shot pattern.

Shooters with slow reaction time should "face the shot" at a point approximately half-way between the crossing point and the far boundary stake beyond which the target becomes a lost bird. Thus, in pivoting back to the zero point to call for the target, greater torsion in the limbs is created, as is required by the longer actual gun swing. It will thus be necessary for the slow shooter to change the position of his feet for each separate shot at any station, including even Stations 1 and 7.

In shooting doubles, the fast shooter will face the shot on the near side of the crossing point, thus retaining his feet "under him" to swing back for the second bird of the pair. Remember—the outgoing target is broken first at doubles, so that the second bird is always an incomer requiring a reversal in direction of the gun swing. The slow shooter obviously will be unable to place his feet anew for the second shot at doubles, so he, too, must com-

promise on one position—usually approximately at the crossing point, as this represents a quicker shot for him on the outgoer.

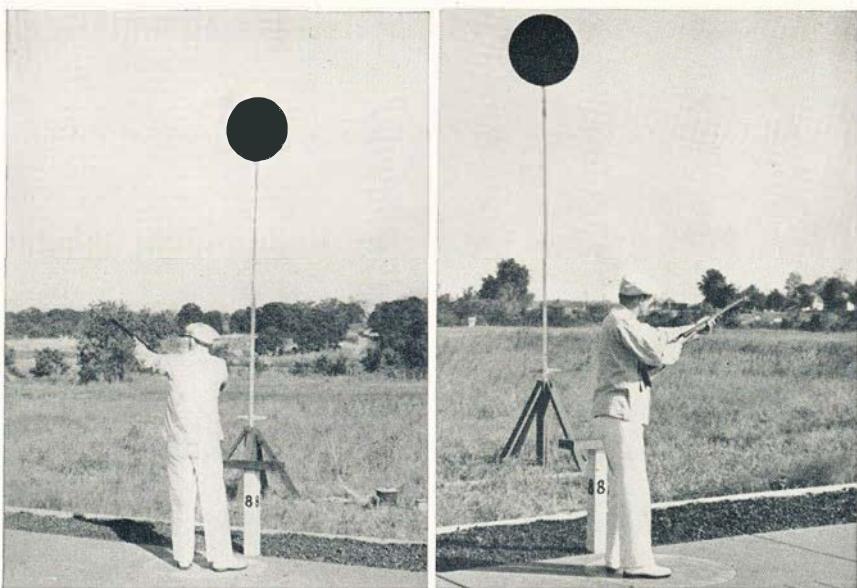


FIG. 24. The photographs illustrate the high-house and low-house shots at Station No. 8 at Skeet, the high-house shot being at the left, the low-house shot at the right. In these two photographs, the position of the black disc indicates the spots at which the shot-charge will be delivered, but the size of the disc has not been reduced to correspond to the small pattern the shooter can expect in this position. Note the high gun muzzle in the photograph at the left, with the right side and right leg of the shooter well braced to receive the backward shift of balance as the gun swings quickly upward and to the right. The lower gun muzzle for the low-house shot is plainly evident in the right-hand photograph, with the bracing of the right leg fully as apparent as in the high-house shot illustrated in the companion picture.

Placing the feet for the shots at Station 8 is an entirely different problem from the conventional footwork at other stations. In this case, the targets will fly sharply past the shooter close to one side, and yet well above the shooter's head—almost an overhead shot. The rule is:

Face that point in space to your upper right—for the high-house—or your upper left—for the low-house—where you actually will break the target. This facing movement includes holding the body in an erect position, or even leaning back, to insure swinging through an overhead short arc in the quickest possible time. It follows that in calling for the target, the direction of the pivot will be *down* as well as inward toward the point of appearance of the target. The muscles of the back and shoulders, when released, will swing the gun upward, just as the released torsion provides the necessary lateral motion.

The photographs in Figures 21-24 show exactly how the pivot is executed for different shots at Skeet. It should be noted that the low-house shot from Station 3 and the high-house shot from Station 5 represent true crossing shots, requiring maximum speed of swing in the "swinging past"

## CLAY TARGET SHOOTING

method, or maximum lead in the "pointing out" method. These two shots are used as illustrations of the vertical clock system for the high-house and the low-house, respectively, as shown in Figures 25 and 26.

Certainly sufficient emphasis has been placed, by repetition and otherwise, upon the fact that the Skeet shooter must first place his feet to face the point at which the shot will be delivered and *then* pivot back toward the proper trap-house as far as the point he considers as the zero of his vertical clock. There remains this caution, however, in visualizing the face of the vertical clock and in estimating the angle "o'clock" which the shot represents:

Always visualize the face of the vertical clock as being perpendicular—or "crosswise", if you prefer—to the line of the eyes as they face the zero point. Do not construe the clock face as including in its plane the exact path of the target. This happy situation will occur in only the two shots diagrammed—the low-house target from Station 3 and the high-house target from Station 5. In the high-house shot from Station 1, and the low-house shot from Station 7, the face of the clock will be exactly perpendicular to

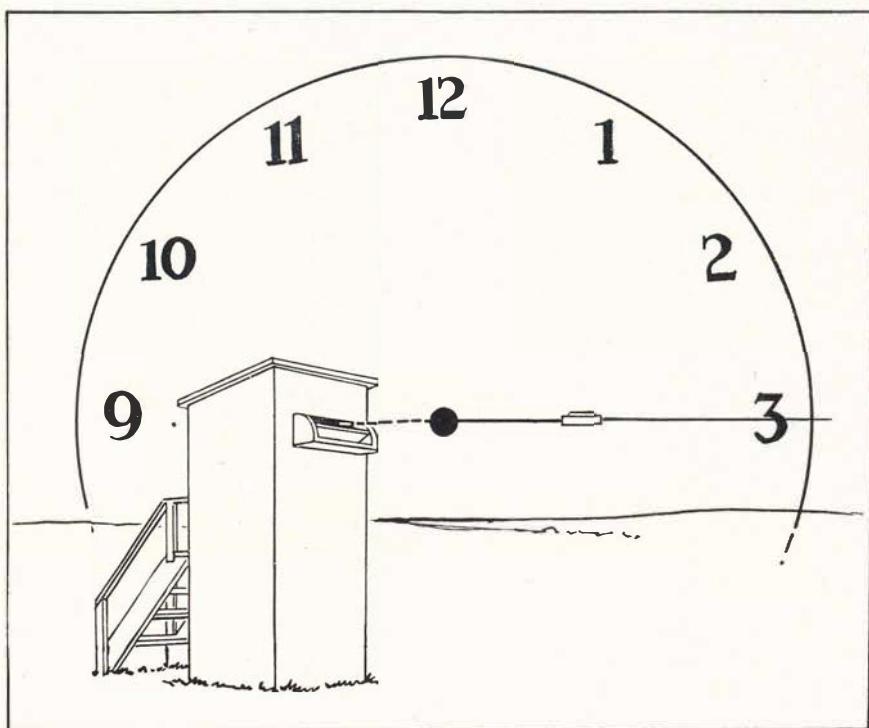


FIG. 25. The diagram shows the application of the vertical clock system to the high-house at Skeet, shooting from the No. 5 position where the target crosses practically at right angles to the shooter. The zero of the vertical clock face—the point on the path of the target where the gun will come in the line of the target's flight—is immediately in front of the chute or opening in the trap-house, and at approximately such distance from the house as to make the target distinctly visible as such to persons of normal eyesight. Some clubs adjust their traps to throw the target at a greater height, in which case this shot will become a "2:30 shot" rather than a "3-o'clock shot."

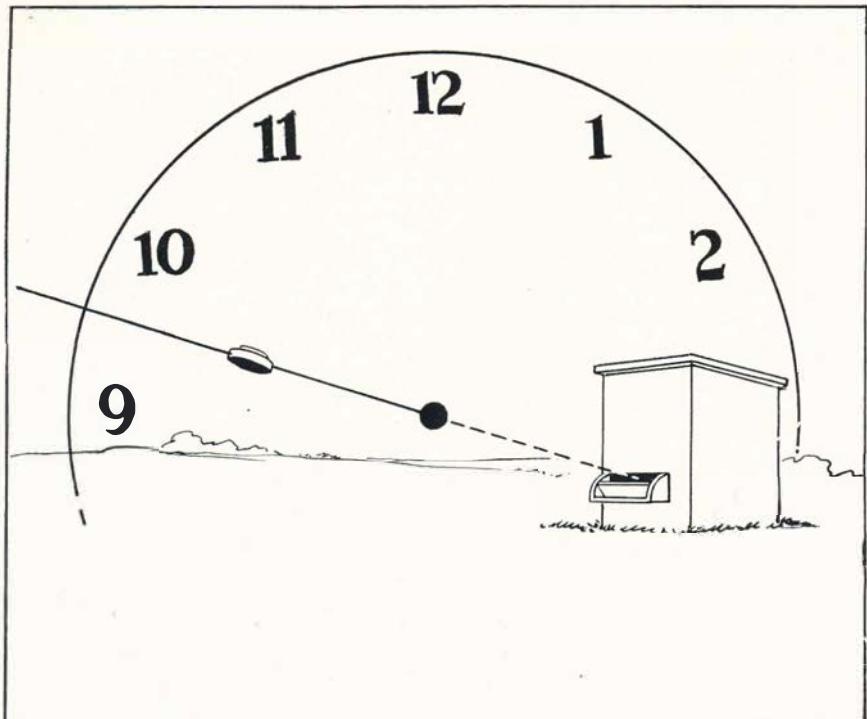


FIG. 26. The diagram shows the application of the vertical clock system to the low-house shot at Skeet from Station 3, where the target crosses practically at right angles to the line of sight of the shooter. It will be noted that the zero of the clock face is far enough away from the trap-house to permit the eye to see the target clearly at this point. From the zero of the clock face the swing becomes a "9:30 shot," as targets are thrown on most Skeet fields. Needless to say, the gun swings to the left and upward at the same time, exactly as indicated by the solid line passing through the target.

the path of the target. For the normally fast shot, taking his targets at approximately the crossing point, the "o'clock" values for the various shots at Skeet are as follows:

Station 1—High-house—6:00 o'clock.

Low-house—11:00 o'clock.

Doubles—same as above, in same order.

Station 2—High-house—4:00 o'clock.

Low-house—10:00 o'clock.

Doubles—same as above, in same order.

Station 3—High-house—3:30 o'clock.

Low-house—9:30 o'clock.

Station 4—High-house—3:30 o'clock.

Low-house—10:00 o'clock.

Station 5—High-house—3:00 o'clock.

Low-house—10:00 o'clock.

## CLAY TARGET SHOOTING

Station 6—High-house—2:00 o'clock.

Low-house—10:30 o'clock.

Doubles—same as above, in reverse order.

Station 7—High-house—1:00 o'clock.

Low-house—12:00 o'clock.

Doubles—same as above, in reverse order.

Station 8—High-house—12:30 o'clock.

Low-house—11:30 o'clock.

Having determined the direction of your shots at Skeet by the vertical clock, it remains only for you to work out the speed factor governing the taking of these shots from the various positions. Since you will want to use the "swinging past" method, you must begin with the shots known to require extreme or full speed of swing, and work down to those requiring only one-quarter speed—such as the high-house target from Number 1 position, and the low-house target from Number 7 position. The amount of obliquity indicated by the angle o'clock will not serve as an infallible guide to speed of swing—as it does in the case of length of forward allowance—because shots which are taken close to the shooter, such as Station 8, require individual treatment under the "swinging past" method. A table of values for speed of swing may be set up for the average shooter which looks something like this:

Full speed of swing: High-house target from Station 5. Low-house target from Station 3. Both targets from Station 8.

Three-quarter speed of swing: All targets from Stations 3 to 5 inclusive, except those included under "full speed".

Half speed of swing: All targets from Stations 2 and 6, assuming the breaking point to be at or near crossing point. If incoming targets are ridden in, speed of swing must be accelerated.

One-quarter speed of swing: All targets from Stations 1 and 7, unless incomers are ridden in, in which case speed of swing must be accelerated.

Do not carry these approximate speed factors to the point of timing them with a stop watch or measuring them with a surveyor's transit. Your actual speed of swing for any target will be governed, in any event, by the length of the arc through which your gun muzzle must move in passing the target. In general, the better the co-ordination of the shooter, the shorter the arc; and the shorter the arc, the less variation between the various speed factors indicated above. It might be well to set up an additional table of factors for the factors themselves, something along this line:

Full speed: Hurry like the devil, left hand retracted.

Three-quarter speed: Fast, crisp swing, left hand retracted.

Half speed: Fast, crisp swing, left hand extended.

Quarter speed: Moderately fast swing, left hand extended.

If you decide to use the "pointing out" method for the shots from Stations 3, 4, and 5 which permit sufficient time for estimating the forward allowance, remember that your original lesson in estimating the lead of a crossing target corresponds exactly to the high-house target at Station 5,

HANDBOOK ON SHOTGUN SHOOTING

and the low-house target at Station 3. These two shots thus would require an actual lead of 6 feet, or full lead under a factor valuation system. All other shots from Stations 3, 4, and 5 would then require slightly less lead—about three-quarters lead would be just about right.



MRS. FRANCES LEE, Fayetteville, New York, demonstrates the form which has helped to make her one of the outstanding women shooters. Present New York State Women's Trapshooting Champion and runner-up for the national title, Mrs. Lee is also a top contender at Skeet. She holds the New York State Women's title and was runner-up in the Women's Division in the 1947 Nationals. The gun is a Savage light-weight auto-loading shotgun manufactured by the Savage Arms Corporation.

## CLAY TARGET SHOOTING

All the foregoing calculations will depart from your mind when you walk up to Position 1 to fire at your first Skeet target. Remember, the right way to put these calculations to work for you is with pencil and paper, in your own home, before you essay to shoot Skeet at all. This applies, of course, to the new shooter. After the new shooter has become a confirmed "Skeeter", then the pencil and paper diagrams can be dragged out in the light of inspection and correction. No doubt, you will be able to put your finger on a definite mistake, somewhere along the line, and thus pave the way for better scores.

So much has been said of the "ready" position with respect to Skeet; of the danger of "freezing" the eyes through a focus fixation; of the evils of cramping swing through inequalities of muscular tension, that there is danger of cramming your brain with all the things you will need to remember when you really begin shooting with an actual shotgun and live ammunition. Suffice it to say that close observation of the illustrations of shooting positions in this booklet—and of good shots on the Skeet field—will help you tremendously in arriving at the correct form for Skeet shooting.

By all means avoid any position which will cramp any muscles—except for the slight torsion on the limbs in pivoting to pick up the target. Be sure to keep your hips level, because it is possible to achieve a smooth pivot only with the aid of a level foundation. And above all, keep the eyes at universal focus! If you find you are unable to get on targets before they reach the crossing point, very probably a fixed stare is freezing your entire muscular system.

Conscious relaxation of the eyes before calling for the target is the sure remedy for this evil. Full dilation of the eyes—merely opening them up wide—usually brings about relaxation and universal focus. Conversely, squinting eyes usually denote a fixed focus—and tense muscles.

You must remember just one thing: That Skeet shooting—or any other shooting—is a sport of controlled relaxation, and that in order to put the proper "zip" into your swing, you must achieve controlled relaxation at all costs.

The little matter of delayed variable timing in Skeet was put into the rules of the game to test your ability to wait for a target without freezing either eyes or body muscles. You must learn to wait, calmly and coolly, until the target appears. Once the timer begins to get the jump on you, you're lost!

So relax your eyes and body muscles, and take 'em when they come!

### SKEET SHOOTING HINTS

The present rules of Skeet permit the shooter to place his gun to his shoulder and sight along the rib to the point where the target is to be broken, and to repeat this performance in the direction of the point of appearance of the target—provided the gun is lowered to the "ready" position before calling for the target. If this measuring-off process helps you mount the gun properly, adopt it by all means. If it doesn't help, don't do it. It then becomes merely lost motion.

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ALEXANDER H. KERR, Beverly Heights, California, recognized as one of the world's outstanding Skeet shots, shows a fine example of correct shooting form. Mr. Kerr won the National Skeet Championship in 1946 and was high overall in the 1947 Nationals. The gun is an over/under double by Remington Arms Company, Inc.

Remember all that has been said about keeping the cheek firmly pressed against the stock in the final alignment of gun upon target. Most missed Skeet targets are lost by overshooting, and most overshooting is caused by raising the head. This is particularly true of the second bird of doubles. Watch it! It may even pay you to say "Head down!" as a preliminary to releasing the trigger.

Your trigger release for Skeet may be either the pull or the slap, but in any event, it must be firm and crisp. Remember that Skeet is also a game of "dash"—you have to put the old zizz into it to score well. As in other forms of shooting, a firm trigger *pull* will serve most persons best in Skeet shooting, but if you are inclined to jam into your trigger pull, try the slap method.

The proper call for the high-house target is "Pull!" The proper call for the low-house target is "Mark!" Learn to use these commands correctly, because they assist your concentration upon the forthcoming shot.

Your gun for Skeet may have more drop at heel and a lower comb than a gun for trapshooting, because it is necessary to hold *under* almost as many shots at Skeet as it is necessary to hold *over*. More pitch *down* also is permissible, for the same reason. A gun with a center of impact barely above the extension of the sighting plane is just about right, as in field shooting.

Be sure to avoid grotesque positions in Skeet shooting, and in other forms of shooting sport. In fact, freak positions are much worse in Skeet—the spectators see you from more angles. Remember, no athlete ever started quickly from a cramped position.

### PART III—SINGLE-TRAP GUN GAMES

Due in large measure to the growing tendency to substitute inanimate targets for native upland game, the inventive genius of the American sportsman has turned in recent years to gun games—trap installations of original design over which targets are shot, usually according to purely local rules.

None of these games has achieved the prominence of a national competitive sport—and perhaps that is as it should be, since standardization of any sport more or less stifles the ingenuity of those pioneering souls who possess the initiative to develop and promote a new game or pastime.

Again, available ground for a gun game invariably possesses certain limitations, due to the ever-present safety factor, and to the character of the terrain. It follows that those gun games are most popular which take advantage of broken ground, deceptive backgrounds, and all types of vegetation.

The principal difference between a gun game and the organized shotgun sports, such as trapshooting and Skeet, is that every possible variable element is introduced into the sport to challenge the skill of the shooter—and make him miss a target. This is true even of hand-trap shooting, which is the best-known and most widely practiced of any of the single-trap games developed up to this time.

Hand traps capable of throwing 70-yard targets—in the hands of a good "pitcher"—are available from every sporting goods and hardware dealer,

and the standard clay targets which they throw also are readily available. Both trap and targets take up little room in a motor car, a motor boat, or in the closet or basement of a summer home or seaside cottage. They are always ready when a group decides to do a little shooting. Since the thrower stands behind the shooter, there is no safety factor to be considered except the danger space in front of the shooting position. Since small shot habitually should be used for hand-trap shooting, any clear field or hillside will do very well for a hand-trap shoot.

Fully one-half of the enjoyment of hand-trap shooting falls to the lot of the thrower. Except in rare cases where the shooter desires level, orthodox targets such as are thrown in trapshooting, the thrower usually essays the rôle of Bob Feller or Dizzy Dean, and tries to strike out the man with



FIG. 27. Photographs illustrating three safe positions for carrying a shotgun in the field. In the first position, the absence of a shooting companion ahead of the shooter makes this position safe. The same may be said for the second position illustrated, which corresponds somewhat to the "high port" of the military manual of arms. The third position is safe regardless of the position of other shooters, but is somewhat less desirable than the others illustrated, because the gun is under control of only one hand. Note that in all three photographs, the careful shooter has his finger extended along the finger guard and locked against it, so that it is impossible for him to touch the trigger without conscious effort. At the same time, this position of the trigger finger prevents twigs and foliage from catching the trigger when a shooter is advancing through dense brush.

the gun. This is entirely fair when two shooters are pitting their skill against each other. Often the better "pitcher" will take the better shot over the jumps. When several persons are shooting, one man can be elected thrower for all shooters, or the group can choose up sides, each side selecting its own thrower to serve throughout the team match.

Whatever the system used to select the thrower, hand-trap shooting is a wonderful sport within itself, in addition to being excellent practice for field shooting. Whether the thrower hurls freak targets by intention or through inexperience, frequently the shots offered are exact counterparts of a towering grouse or a twisting quail. Again, level targets hurled at high speed develop a corresponding speed in gun pointing which is highly desirable in all modern shooting, particularly at upland game birds.

It surely is not necessary to present diagrams or other printed instructions for the use of the hand-trap. The thrower merely stands behind and at one

## CLAY TARGET SHOOTING

side of the shooter, throwing the targets at command—or when the shooter thrusts his gun forward in the “ready” position. Variable delay can be introduced by requiring the shooter to wait one or more seconds before the target is thrown.

Ideal locations for sporty hand-trap shooting are a high bluff overlooking a lake or river, a glade in the woods with scattered trees around which the targets may be made to disappear, or a deep ravine or quarry where the targets can be made to appear up over the rim at unknown angles and from unknown positions.

One of the best examples of group hand-trap shooting is the annual club championship held by an outing club with a location on a high bluff overlooking a Southwestern river. The top of the bluff has been cleared, permitting the thrower to walk along its length for one-half mile. Half-way down the bluff is a terrace, along which the shooter walks. The course consists of walking the full half-mile of the terrace, and then returning. Twenty-five shots are fired in the mile walk, constituting the championship event.

The thrower—in this case an official of the club who delights in crossing up his fellow-members—always is accompanied by a gallery, one of whom plays the part of a springer spaniel. When the “spaniel” barks, the shooter can expect a target to appear from overhead, its course lying anywhere within the rim of the bluff. The pace of the shooter is regulated by the “spaniel”, who is always visible against the skyline. An adaptation of the same game can be utilized almost anywhere it is safe to shoot a shotgun, but requiring the shooter to set his own pace, since it will be unsafe for any person to be out ahead of him.

In this form of hand-trap shooting, as in most of the other gun games involving walking on the part of the shooter, the shooter frequently is caught “flat-footed” by the appearance of the target. Sometimes this is



FIG. 28. The three photographs above illustrate the taking of a target to the right or the right rear from a position where the shooter is in motion with left foot advanced. The shooter withdraws the right foot until his right heel is behind the line of the left heel, then pivots on the right toe and steps in the direction of the flying target with the left foot. This is normal foot work for a right-handed shooter under these difficult conditions. Because of uneven ground, interfering undergrowth, etc., he would not attempt to face the target merely by turning on the heels or the balls of the feet. Actual lifting and placement of the feet is necessary in every motion.

done intentionally by a thrower with a hand-trap, or by the trap puller in the case of a fixed installation. It is only necessary to watch the feet of the shooter, and throw the target when a right-handed shooter has the right foot advanced—or the opposite for a left-handed shooter.

Obviously, the same technique on the part of the shooter is required for this type of shooting as for actual field shooting at game. The gun must be held in a safe "ready" position, with the muzzle very high. Short but firm steps should be taken in the direction of the course. If the target appears when the shooter has the wrong foot advanced, he must quickly take a step forward with the pivot foot, relaxing the leg muscles of the steering foot to permit his body to lean forward into the shot.

The importance of fast but firm footwork in this type of shooting can not be overestimated. Almost any upland gunner can recall some day in his experience when he hunted quail or grouse over frozen ground, with resulting insecure footing. He is indeed lucky who can score at all under such conditions. Only a very fine sense of balance can accomplish smooth, even pivoting on broken or frozen ground—which fine sense of balance is exactly what every upland gunner should strive to achieve.

Gun games with fixed installations of standard traps are growing rapidly in popularity, and deservedly the most popular of them all is the "Skee" or "joker" trap.

This trap is mounted on a ball joint of one of several types, permitting tipping of the trap to any angle before the target is thrown. Weird and outlandish are the trajectories of targets thrown from a joker trap—and unbelievably low are some of the scores resulting from a round of twenty-five targets.

Rules for shooting this gun game necessarily vary at different clubs, depending largely upon the type of ground available for the installation. Some clubs with limited space mark off shooting stations from 15 to 25 yards, similar to the positions in regular trapshooting. Other clubs require the shooter to walk into the shot, with the target being released at any point within a prescribed distance from the trap. Here again the trap-puller tries to catch the shooter flat-footed, while the trap-operator strives to place every target at an unexpected angle—preferably around or over a tree or some other natural obstacle.

Your gun for hand-trap shooting, for "Skee" and similar joker traps, may be any standard arm of any gauge, reasonably adapted to the job it is expected to do. Where shooting from long yardages is required, a gun with full choke or improved modified barrel is needed. The fast shot, however, will break many targets by shooting quickly with a field gun of improved cylinder or half choke. A double gun of either conventional design, affording the choice of an open barrel and a tight barrel, is the ideal arm for this type of shooting, since the selectivity of the barrels gives the shooter a big advantage. This is particularly true when doubles are thrown from a joker trap, since invariably the second target must be pointed out and broken at long range.

"Skee" or joker traps are ideal installations for private estates and clubs located in an upland game country, since they afford excellent practice for

field shooting—particularly when a walk-up element is introduced. Lacking unlimited wild game upon which to develop a fair degree of shooting skill, it is a wise gunner who limbers up his field gun with hand-trap or joker-trap shooting in advance of the gunning season.

The shooter who would do well at hand-trap or joker-trap shooting, or similar gun games, finds the vertical clock system a real boon. Assuming he will be required to start with his gun in the orthodox ready position, he must develop the greatest possible speed in mounting the gun and then swinging to the target. Unless the shooter elects to try for the target by snap-shooting—which is never advisable if it is possible to use the “pointing out” or “swinging past” methods—he must face the shot in the approximate direction of the target, mount the gun in alignment with this spot, and then correct his aim by swinging on the target.

Another way of putting it is to cover the spot where the eyes identify the target, in first mounting the gun. The target, of course, will not stay there—it will keep on moving along its path, but unless a tree or some other object intervenes, the exact direction of its flight from the zero point will be estimated readily, using the sighting plane of the gun to indicate the zero-12-o'clock line of the clock face. A quick swing, using the “swinging past” method, overtakes the target, the trigger is pulled as the gun passes it—and the target is broken.

Equally attractive for private estates, and particularly so for duck clubs, is “tower shooting”, which merely involves the mounting of a single trap in a high tower, in the top of a great tree, on the flat section of a club-house roof, or in any other position where the targets can be made to appear from overhead at an original elevation of forty feet or more.

Tower shooting is ideal practice for wildfowl shooting, in addition to being something of a real gun game in its own right. Where it is possible to throw “blind” targets over a row of tall trees or across a club-house roof, it is just about the sportiest shooting known to modern shotgun technique. As in other installations involving unknown angles through a wide arc, the safety factor is the only limitation on the possibilities of tower shooting.

The sporting character of tower shooting thus varies with the width of the arc through which it is possible to fire with absolute safety. If the trap is mounted on a roof, it will not be possible to shoot toward the trap, and all shots must be taken going away. If, however, the trap is in a tower or tall tree, and the operator is protected by a trap-house of sheet metal or other safe material, it is often possible to shoot completely around a circle, including incoming overhead targets similar to overhead shots at waterfowl. For this type of shooting, the trap should be located in the middle of an open field, or other safe area. The spectators must be limited in number, and must follow the shooter.

An excellent way to conduct tower shooting is to appoint as referee some disinterested person to lead the squad to various positions, indicating the exact conditions of the shot from each location selected as a shooting position. In some of the installations of this character at well-known clubs throughout the country, perfect scores are unknown. One such club, one of the oldest in the

East, points with pride to a top score of 23 x 25 which is the ground record.

Since shots up to 50 and 60 yards of actual range can be expected in tower shooting, a gun with a degree of choke not less than modified is indicated for this sport. Perhaps "improved modified" is just about right—as it is for the first barrel of a double gun to be used on wildfowl. Some duck clubs require their high-tower course to be fired with duck loads, no shot smaller than Number 6 being permitted. This places an added premium on rapid gun handling, since heavy shot opens up the pattern rapidly at long ranges, and the small clay target can slip through.

Just as in actual wildfowl shooting, the long ranges at which shots often must be taken in tower shooting indicate a decided preference for the "pointing out" method. Because of the great height of the target, the necessary allowance above or below the target often exceeds the forward allowance. This requires abrupt corrections in both direction and speed of the gun swing, so that it is much better to obtain and hold the proper lead until the trigger is pulled than to attempt to "swing past" the target on a wide tangent to its trajectory.

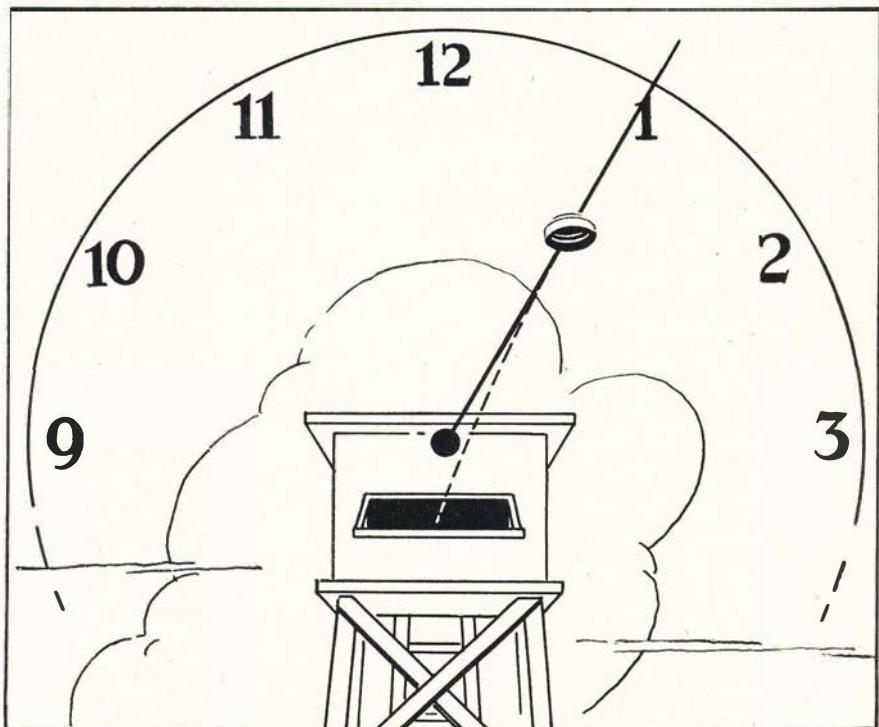


FIG. 29. The diagram represents an overhead shot at high tower shooting with the shooter facing the opening in the trap-house on top of the tower. The zero of the clock face is that point in front of the opening or chute where the target will become plainly defined. From this point, the swing should be steady and rapid along the solid line leading directly from zero to 1 o'clock. The slight tangent at which the line of gun swing approaches the line of flight of the target may be disregarded in this type of shotgun shooting, since the common error here is to shoot behind rather than to one side of the flying disc.

It must be remembered at all times that the "swinging past" method is adapted only to those forms of shooting where the direction of gun swing closely parallels the line of flight of the target, or crosses it at a very slight angle. In tower shooting, as in wildfowl shooting, the direction of gun swing to obtain the proper vertical and forward allowances often causes the arc of the swing to cross the line of flight of the target at a wide angle. If the "swinging past" method were used, this angle would move the pattern out of the path of the target, and the result would be a miss.

The sporty character of tower shooting is indicated clearly in Figures 29 and 30, illustrating the same shot from a high tower trap, but from two different shooting positions. In one position, the shooter is facing the target, and the zero of his vertical clock is in a position closely approximating the zero for the high-house at Skeet. He picks up the target just outside the chute, and fires at it

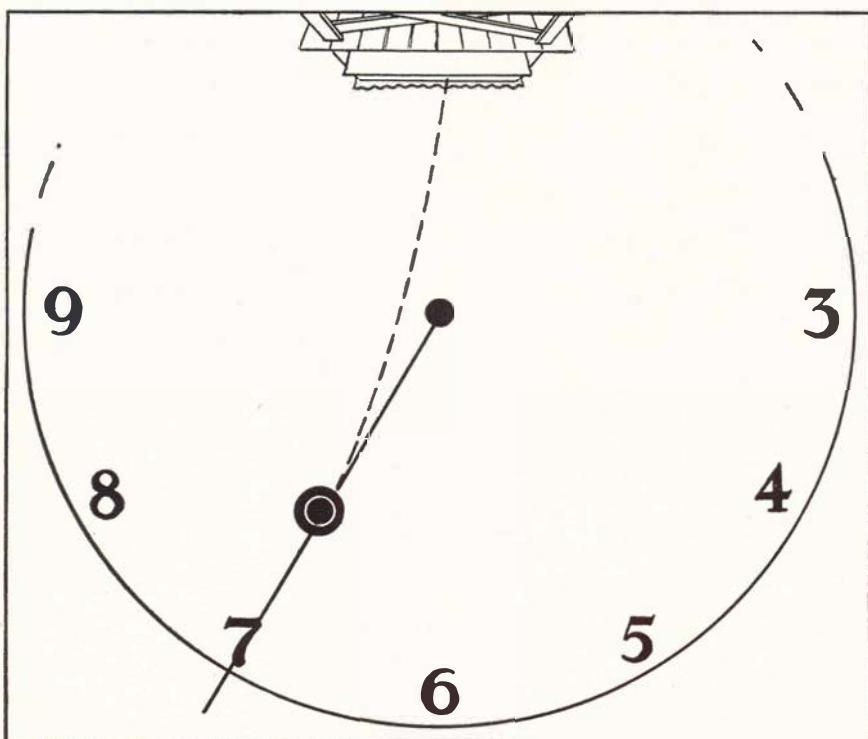


FIG. 30. In order to visualize this diagram, it is necessary to hold the page at arm's length over the head and look almost directly upward, since it is assumed the shooter's back is to the high tower from which the target is thrown. Note that the zero of the vertical clock face is quite far from the opening or chute from which the target will appear, since it is naturally impossible to crane the neck directly upward to pick up the target at the opening itself—even if the eyes are strong enough to accomplish this feat. By the time the target has passed the point at which it was identified by the eye as such, represented on the diagram by the zero of the clock face, the direction of the gun swing has become a "7-o'clock shot" as indicated by the solid line. As in other diagrams illustrating the vertical clock method, it will be noted that the line of gun swing approaches the line of target flight at such a small tangent as to practically coincide with the path of the target. Again it may be remarked that if no greater errors in the gun swing occur than the slight tangent illustrated here, the gunner will not need to worry about his scores. After all, the pattern of the shotgun is 24 or more inches across at all ordinary ranges at which clay targets are shot.

coming toward him. In the other position, the shooter has his back to the trap, must shoot at the target going away, after it crosses overhead from behind him. His clock zero, then, will be that point behind the target, but on its path, where his eyes identified the target as such. He must then estimate the angle of the target by its relation to the sighting plane of his gun, remembering to hold well under all such outgoing shots.

Usually, traps for tower shooting permit throwing targets at unknown angles through approximately a 90-degree arc. If the shooting position is on a line representing one edge of this arc, the shooter may draw a target along the farther edge which must be taken at a range of 50 or 60 yards. In addition to the fact that the normal vertical allowance for a going-away overhead target is under, the target also will be falling at this extreme range, and the remaining velocity of the shot-charge will have been reduced considerably. All these considerations point to a vertical allowance under the target apparently out of all reason—and these allowances must be learned by actual experience.

Depending upon the amount of "daylight" a shooter normally sees between his front sight and the target, vertical allowances under high tower targets at extreme range may well approach 12 to 20 feet. No hard and fast rule can be given, even for level ground, because of the varying speeds at which tower targets are thrown. Most tower traps have the spring wound up to the limit, and the targets would fly 70 yards from a ground-level trap under trapshooting conditions. With the trap elevated forty feet in the air, the spring at full tension, and a following wind, tower targets may fall 100 yards away from the trap.

A safe rule is *always* to overestimate the allowances necessary, both forward and vertical. When you miss one, increase both allowances. You will end up, usually, by breaking your targets with just about double the vertical and forward allowances you considered necessary in your first estimate. Remember that the length of the shot string is working for you if you overestimate the lead, but that if you underestimate it, you do not have a mathematical chance to break the target—all the shot pellets will pass behind the bird.

The following safe rules may be laid down for the application of the vertical clock system to high tower shooting:

**Facing the Tower:** The zero of the vertical clock will be approximately the same as the zero for the high-house at Skeet—about 10 feet out from the chute opening.

**Facing Across the Field of Fire:** The zero should be well out from the chute opening because of the length of swing required to overtake and pass the target with the gun. Ordinary distance is about 50 feet.

**Facing Away from the Tower:** The zero will be a point in the wake of the target, approximately on its line of flight, from which the angle of the target must be estimated by its relation to the sighting plane.

One final point to remember is that the combination of vertical and forward allowances necessary to hit a high tower target will vary exactly 180 degrees—or six hours on the clock face—depending upon whether you are facing the tower or facing away from it. A 1-o'clock target, for example, becomes a 7-o'clock target when you have turned around and are facing away from the tower. Your lead in the first case is "high and outside"; in the second case,

## CLAY TARGET SHOOTING

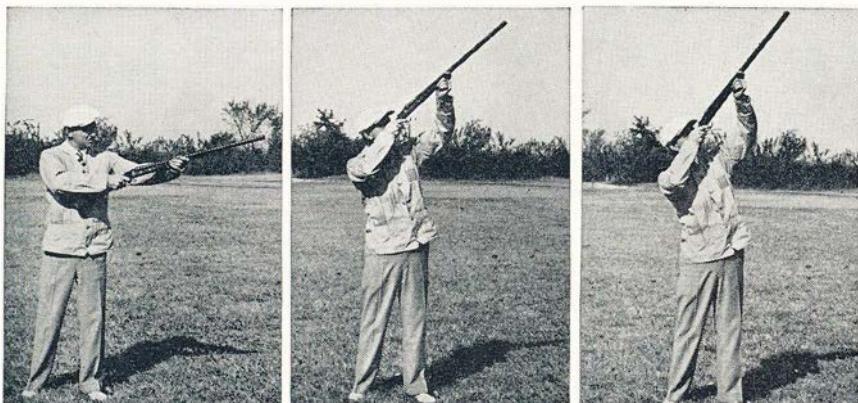


FIG. 31. Illustrating the overhead shot at high tower shooting or at wildfowl or upland game. The gun swing is started from a normal shooting position as illustrated in the photograph at the left. The gun is fully mounted to the shoulder before the body is bent so far backward at the waist as to cause undue displacement of the stock on the shoulder in continuing through the swing. The photograph at the right shows the shooter in perfect position to complete fast, compact swing necessary to get ahead of the flying target and continue the follow-through until the trigger is released. Note that the bending backward of the upper part of the body shifts the weight to the right leg, and makes this leg the "pivot leg" on an overhead shot rather than the left leg, which is the pivot leg in normal shooting.

"low and inside". In either case the sighting plane of your gun, properly held at the high ready position, with the front sight level with the eyes, will give you the proper lead at a glance.

The most common fault in tower shooting, as in wildfowl shooting, is a combination of raising the head and canting the gun. As the shooter swings through a wide arc, he has a feeling that his cheek is in the way, if the swing is wide to the left; or that his cheek cannot keep pace with the stock, if the swing is wide to the right. These examples, of course, are for a right-handed shooter. The common tendency is to hold the head in its original position, twisting the gun until the eye can follow the rib—even if the rib is turned over on one side to suit the position of the eye.

A hit under such conditions is the merest accident. The body must pivot far enough toward any shot so that the cheek can ride the stock with the gun in a level position—in other words, with the rib exactly on top. It is only in this position that the rib or single tube of a gun can be used as a base-line for estimating the angle of flight of a target.

## PART IV—MULTIPLE-TRAP GUN GAMES

Multiple-trap gun games may be described as fixed installations representing the ideas of one or more sportsmen with respect to the highest type of shooting sport for the sport's sake.

There may or may not be a competitive element in each installation which is just as fair for one shooter as for another. The big idea is to beat the game itself—to learn to hit difficult targets, usually presented under conditions as nearly representing upland game shooting as may be possible with inanimate targets and mechanical equipment.

Multiple-trap installations range from two small, inexpensive traps orig-

## H A N D B O O K   O N   S H O T G U N   S H O O T I N G

inally designed for practice for 16-yard target shooting; through the range of two or four traps capable of throwing from two to eight targets at a single "covey rise"; and up to a "quail shoot" or a "quail walk" with as many as twenty-five traps so placed as to provide a different type of shot for each shell in the standard carton of twenty-five.

When two traps are employed, they may be placed close together; at some distance from each other, to provide one near and one distant shot; or far removed from each other, to provide both an outgoing and an incoming shot as a pair of doubles. Usually, when the permissible shooting range is restricted, the traps are placed close together and targets from them, while they may cross immediately ahead of the shooter, normally are thrown within an arc not exceeding 90 degrees. When the safe shooting area is as much as 180 degrees, two traps placed at almost any reasonable distance from each other may be employed, as in the game of "Mohawk". By varying the shooting positions around a semi-circle as in the case of a Skeet field, a wide variety of targets can be thrown with a double-trap installation, not overlooking the fact that traps can be selected which are capable of throwing doubles, thus providing the "covey rise" effect so desirable in its tendency to confuse the shooter.

Since all such multiple-trap installations will vary with the available ground and the ingenuity of the designer, it will suffice for the purposes of this booklet to classify multiple-trap gun games in two groups—those where the shooter stands at definite shooting positions, and those where each target is trapped while the shooter is walking into the shot.

A fine example of the employment of two traps set close together is the Sleepy Hollow "quail shoot", where two traps are set under a shooting platform to give either a single target or a pair of doubles at unknown angles. The same type of installation can be made to include a covey rise by the employment of traps capable of throwing doubles, in which case the shooter must select two of the four birds at which to fire.

Similarly, this type of shoot can be varied by providing either fixed shooting positions, or by requiring the shooter to walk into the shot.

For this gun game, and for all other multiple-trap installations, a double shotgun of either design is the most satisfactory, since it will afford the selection of an open and a tight barrel. The game is at its best when it can be shot with a field gun, since, after all, it is a close approximation of quail or grouse shooting without the aid of a dog. The "birds" appear to be jumped naturally from realistic cover, in many cases, and when two shots are to be fired at a single rise, it is good policy to break one target as near as possible to the trap with the "swinging past" method, then "pointing out" the other at fairly long range.

However, this normal situation can be disturbed by the introduction of long yardages from fixed positions, and at many clubs, a gun bored for trap-shooting or wildfowling is to be preferred. Under any conditions, the speed and general adaptability of the shooter will govern the percentage of targets broken, regardless of the degree of choke in the gun. The shooter with a gun bored for upland game simply will have to get on his targets quicker than the other fellow—and he can do it successfully because of the larger spread of pattern afforded by his open barrels at close range.

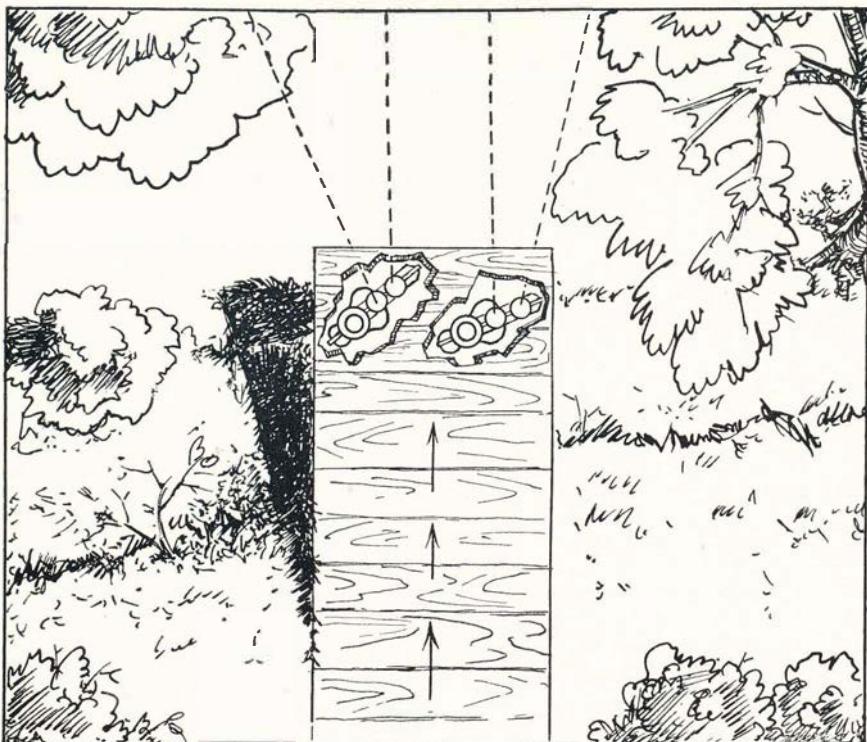


FIG. 32. The diagram represents a "covey rise" installation of two traps, each capable of throwing two targets, or four targets when trapped simultaneously, taking somewhat the directions of the dotted lines. The traps are mounted under the end of a raised platform along which the shooter advances, as indicated by the arrows. As described in the text, one, two, three or four targets may be released at a time, the shooter's score being determined by the number of targets broken in relation to the number of shots fired.

An ideal installation for this gun game employing two fixed traps will include two medium-priced traps with so-called shovel carriers, thus incorporating the covey rise feature. The targets may be thrown as 13 singles, three pairs of doubles, and three covey rises of four targets each, out of which a double must be broken. This makes possible a perfect score of 25 out of each carton of shells. If the covey rise is not employed, an ideal arrangement is 15 single targets and 5 pairs of doubles.

Exactly the same rules apply to the "quail shoot" with two traps as to the "Skee" or joker trap, except that the shooter must always be prepared for the appearance of double targets, or a covey rise, as the case may be. He must have two shells in his gun, instead of one, and very strict safety precautions should be enforced. These will include the breaking of a double gun or the opening of the chamber of a repeating or automatic gun, before the shooter retraces his steps to the point of beginning of his "walk".

From the standpoint of gun pointing, the shooter must locate the zero point of his vertical clock dial as that point in space which the target occupied when he first identified it as a target. The gun is mounted to cover this point, and

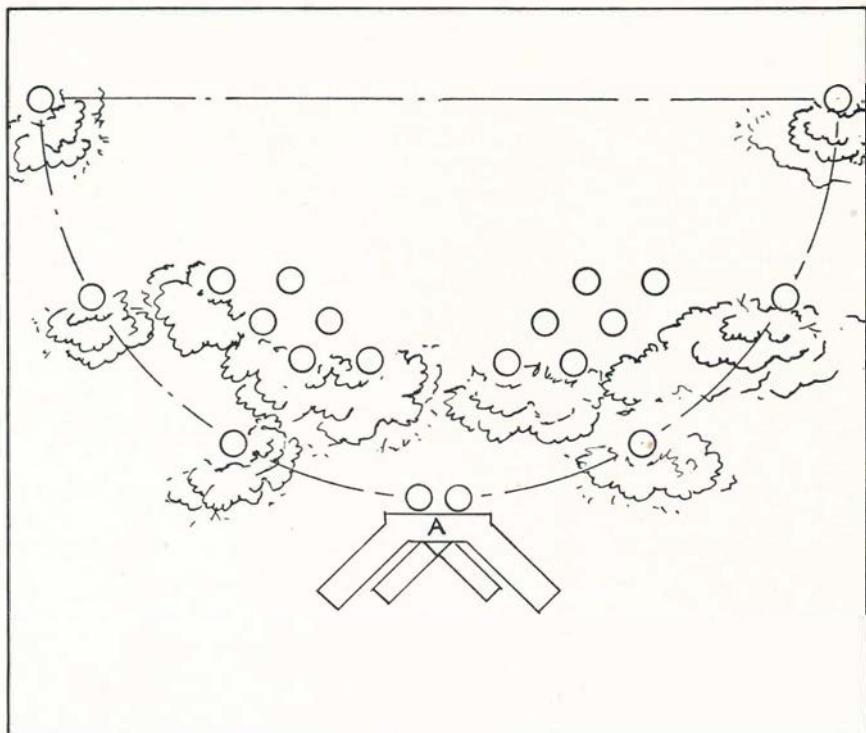


FIG. 33. The diagram shows the "quail shoot" designed by Abercrombie & Fitch for their own shooting school, and offering great possibilities for competitive shooting at country clubs and on private estates where a unique gun game is desirable to create interest in shooting. Twenty-five inexpensive traps are used in the installation, the shooter taking his position on the shooting platform designated by the letter 'A'. The traps are tripped by wires or ropes running to a control board immediately back of the shooting position. In general, the traps immediately in front of the shooter are set to throw straightaway or quartering targets, while those at a distance give crossing shots.

then swung to the target by the "swinging past" method. If a second target has been thrown, the shooter must then swing and break the second of the pair by "pointing out" the shot.

Just as in shooting doubles at trapshooting, the trick of shooting good scores in this game consists of first taking that target which more nearly approximates a straightaway. This simplifies the matter by reducing the arc of gun swing necessary to deliver the first shot. The shooter will retain his balance better by shooting the straightaway—or near-straightaway—first, and will have his feet "under him" to swing for the second target with a smooth, level pivot.

In the case of a covey rise, the shooter has a better chance for a straightaway for his first target than if only two targets are thrown. While delivering the first shot, he must retain in his mind the direction of flight of the target he has selected for his second barrel. This is the normal procedure in double target shooting at the traps, as well as in any game when only two targets are thrown. It is harder when there are three remaining targets to select from—perhaps the one originally selected simply isn't there when the shooter swings for it. This is the added zest of introducing the covey rise into a gun game of this type.

## CLAY TARGET SHOOTING

From the gun game of the "quail shoot" type with the covey rise feature, it is only a step to the de luxe "quail shoot" with as many as twenty-five traps, each trap to throw a target at an angle which may be fixed as far as the trap is concerned, but which is absolutely unknown to the shooter, who has no advance information as to which trap will be released next.

Large installations of this kind may introduce the walk-up feature if it is desired, but ordinarily the set-up is sufficiently difficult with the shooter remaining at a fixed position, and taking his shots with the gun at the ready position. Because of the large area occupied by the trap installation, some of the targets will rise near at hand, others from quite a distance away from the shooting platform. This shoot even can be operated on a distance-handicap basis, with the higher-average shooters required to fire from 5 to 10 yards behind the scratch position.

Except for the fact that targets thrown from a large installation offer greater difficulties in angle determination than those from smaller and more compact installations, the de luxe "quail shoot" requires much the same technique as its smaller counterpart. Single birds must be taken according to the

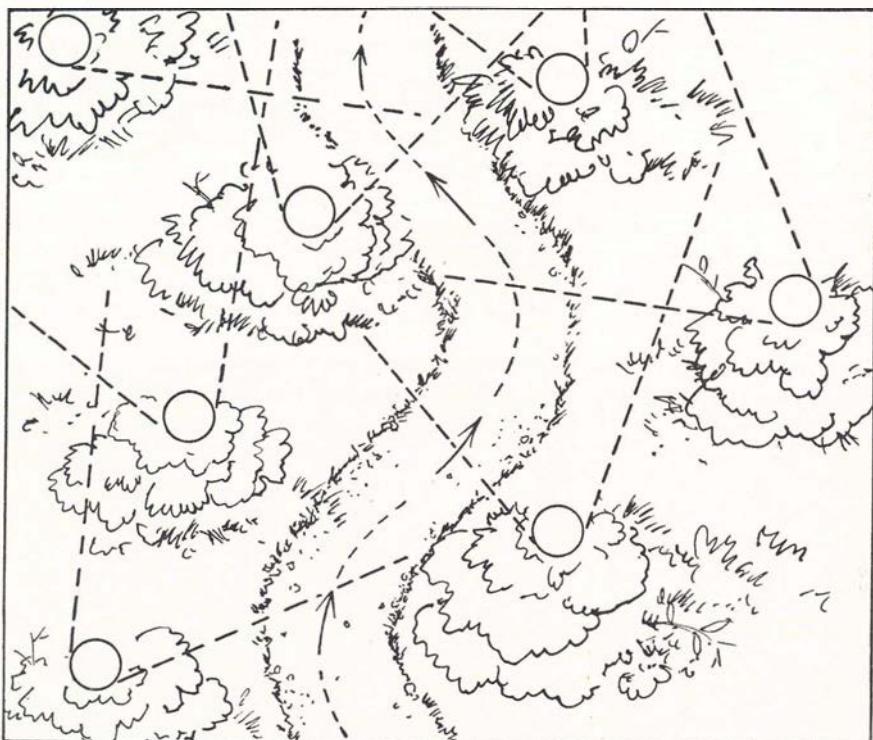


FIG. 34. This is an ideal "walk-up" installation, utilizing inexpensive traps which may be tripped by ropes or wires leading some distance from the traps themselves, thus keeping the shooters in ignorance as to when birds will appear. One or two shooters proceed along the walk indicated by the arrows. If only one shooter, he accepts all chances which appear. If two shooters shooting as a team, one takes all targets rising to the left of the walk and the other all targets rising to the right. As many as 25 traps, camouflaged with shrubbery or other natural cover, can be used in such an installation.

same rules as in the two- or four-trap installations. It is only when doubles are thrown from the de luxe installation that the shooter finds himself in real trouble.

In the case of a pair of doubles thrown from the separate traps of a large installation, one bird may rise almost at the shooter's feet, another some fifteen or twenty yards away and to the right or left. Further complications set in when the doubles are not trapped simultaneously, but when the second target is released at the report of the gun resulting from the appearance of the first bird. Many good performers at this gun game choose to fire the heavily choked or tight barrel at the first bird, then using the more open barrel on the second. This may be excellent practice for some installations, but generally speaking, it is always better to make a clean kill of the first bird with the open barrel, reserving the tight barrel for an unhurried shot at the second target. This sequence certainly gives more time for "pointing out" the second target, and is usually a more satisfactory arrangement all around.

The "quail walk" or "walk-up" is a de luxe edition of the field walk previously described in which the hand-trap was utilized. As many as 25 traps may be employed, and some of the more ornate installations permit two men to shoot at the same time, exactly as a pair of hunting partners would do in the field—one taking the right-hand birds, one the left. The traps are scattered here and there over the terrain, utilizing clumps of bushes, thick trees, and other natural cover to screen them from the view of the shooter.

Ordinarily, small, inexpensive traps are used, ropes or cables being utilized for releasing the targets. The traps are pulled from behind the shooter, who is so fearful that he will miss the rise of a target out in front that he pays no attention to the "beaters" and "gun-bearers" accompanying him. Very few "walk-ups" have been constructed with electric or cable releases located at remote points, and in such cases, the shooter walks alone, or in front of a referee, while the gallery watches from a safe distance. Targets never are



FIG. 35. Illustrating the taking of a surprise shot to the right or the right rear by a shooter advancing at normal shooting pace and caught out of position with right foot forward. Note that in the photographs above, the step was completed and all the weight thrown on the right foot. The shooter then pivots upon the right foot, and swings the left foot around to face the target. This situation and the one illustrated in Fig. 28 are the most difficult foot movements possible for the upland gunner, or in shooting "walk-up", or other gun games where a shooter in motion is required to fire at unknown angles.

## CLAY TARGET SHOOTING

released back toward the rear of the shooter—always to the front or to one side.

Since a “walk-up” provides no better footing than an ordinary path through fields and woods, this gun game is more sporting than those installations where a board or concrete walk is provided. The smart shooter soon learns to pause momentarily each time his pivot foot is thrust forward, alternately taking a quick step with his steering foot. This limping gait serves to put the trapper in the hole to the gunner, who more often than not is in a fair shooting position—or just assuming one, when the target is released.

Doubles in the “walk-up” game may be released simultaneously, or one bird may follow the first at the crack of the gun. Ordinarily two or more control cables are brought to a common point, to permit the throwing of doubles if desired. Some clubs go the whole limit, and permit the trapping of the second target while the gunner is reloading the fired barrel. This calls for fast work, indeed—and just as often as not, speed or no speed, the target sails away untouched.

The only rule for breaking good scores at “walk-up” is to urge constant practice in mounting the gun and estimating the angle of the target. Speed, speed and yet more speed, is the requirement of this game. The first bird always should be taken with the “swinging past” method, unless its rise is so distant as to require actual calculation of the vertical and forward allowances. This is really one game where the proficient shooter must be able to adapt his style of gun handling to each successive situation.



# The TEN COMMANDMENTS OF SAFETY

*Recommended by*

THE SPORTING ARMS AND AMMUNITION MANUFACTURERS' INSTITUTE

**"SAFETY FIRST—ALWAYS!"**

**Make That Your Motto**

**I**

*Treat every gun with the respect due a loaded gun. This is the cardinal rule of gun safety.*

**6**

*Never point a gun at anything you do not want to shoot.*

**2**

*Carry only empty guns, taken down or with the action open, into your automobile, camp, and home.*

**7**

*Never leave your gun unattended unless you unload it first.*

**3**

*Always be sure that the barrel and action are clear of obstructions.*

**8**

*Never climb a tree or a fence with a loaded gun.*

**4**

*Always carry your gun so that you can control the direction of the muzzle even if you stumble.*

**9**

*Never shoot at a flat, hard surface or the surface of water.*

**5**

*Be sure of your target before you pull the trigger.*

**10**

*Do not mix gunpowder and alcohol.*

PUBLISHED IN THE INTEREST OF MAKING AND KEEPING SHOOTING A SAFE SPORT



# CHAPTER IV

## Game Shooting

### PART I—UPLAND GAME

MORE than sufficient instruction has been given in the previous pages of this text to make an expert upland gunner out of any reasonably able-bodied citizen of any age or either sex.

It has been explained previously that the grand gun game of Skeet was designed both as a substitute for upland game shooting, and as a tuning-up process for such shooting as remains in most sections of North America. Even the variable delay in the trapping of Skeet targets is intended to school the shooter in alert watchfulness without “freezing” his controls. Further, every possible shot at upland game—and a few impossible ones—are included in the repertoire of a “Skeeter”.

But if practice at Skeet is not enough, a little hand-trap shooting with a few boon companions, or several sessions at a “quail shoot” or “walk-up”, should finish the education of any gunner. There remains only the time-honored ailment of buck fever to be reckoned with, and since this corresponds to the fault of flinching in target shooting, the cure is strictly up to the shooter and to nobody else.

Buck fever ordinarily is diagnosed as over-anxiety in the presence of game. Over-anxiety, that is, to bag the flying game before it gets away. In reality, buck fever is deeper-seated than a mere case of the jitters. It should be described more properly as a shooter’s inferiority complex—distrust of his own ability to pull off the shot when the emergency confronts him. As a result of his buck-fevered state of mind, he either freezes his eyes and body muscles and fires too slowly, or else hurries the shot and bangs a hole in the air.

There is no denying the fact that the whir of a rising covey of quail, or the seeming explosion of a grouse in the dry leaves, is calculated to unnerve any gunner. The word “calculated” was used advisedly, since Nature intentionally equipped most game birds with this protection against their natural enemies. Yet this same surprise as game takes wing is the real thrill of upland game shooting. The man who continues to be unnerved by the rise of quail or grouse should seek safety in a psychopathic ward in some hospital in the middle of a great city.

Perhaps the jittery shooter will take heart at the experience of an old-time quail hunter who once made camp near a little village whose inhabitants had offered to share their game supply with the old-timer and his party. Camp was made in the early evening, and the old-timer spent several hours talking to the boys in the back room of the general store. Along toward midnight he retraced his steps toward camp. It was necessary that he pass along one side of the village graveyard. Ordinarily not superstitious,

and on this occasion doubly armed with the warm glow of hard cider, he swung along the path with no thought of ghosts.

Suddenly an old, grass-tufted grave almost in his path exploded into myriad flying meteors that lashed out for his head, fanning his neck with the miniature hurricanes of their passing, deafening his ears with the thunder of their flight. Stark terror took control. The old-timer had only one thought, and that was to—scram! A hundred yards down the path he came to his senses, sat down on a convenient stump, and laughed until he cried.

Few shooters ever will experience such an ordeal in these modern days—that of walking into a big covey of quail on their roost in a country graveyard at the hour of midnight. Yet it might be well if every upland gunner had such an experience at the very outset of his shooting career. Now, every time a covey breaks cover in front of this old-timer, he laughs. Sometimes his mirth so convulses him that the birds fly away unharmed—that is, all except two or three of the stragglers. The whir of a covey no longer holds any terror for him in broad daylight.

Summing up the many reams and volumes that have been written on

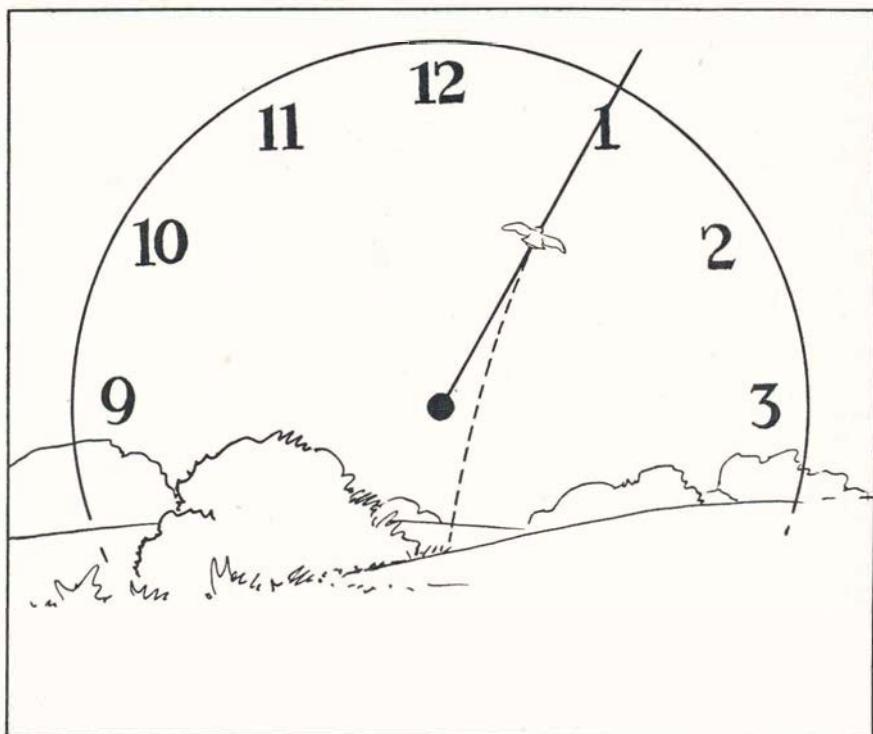


FIG. 36. How a right quartering bird becomes a "1-o'clock shot" under the vertical clock method is illustrated in the above diagram. The bird flushes immediately in front of the gunner, who quickly places his feet and "covers" the spot in space on or near the path of the target where he identified the target as such. In this case, the bird has veered slightly to the right, so that a rapid and steady swing directly from zero to 1 o'clock overtakes the bird and places the shot-charge squarely across its path. Careful attention should be paid to the fact that the zero of the vertical clock represents the spot where the gunner "faces the shot". The swing from zero to 1 o'clock represents added rapid correction of the alignment of the gun along the path of the fleeing target.

upland game shooting, it seems that the noise of the fanning wings creates the impression in the gunner's mind that the game is going places, and that he must hurry, hurry, hurry! Well, so what? The gunner, indeed, must hurry—but not to the point where he bangs an unaimed shot in the general direction of the speeding game. He *must* take time to do these three things:

Advance the pivot foot in the direction of the flying target or targets, at the same time selecting *one* bird—if more than one has flushed—at which to direct his first shot.

Mount his gun quickly and press his cheek to the stock, covering with the sighting plane the theoretical zero point of his imaginary vertical clock—which will be that point on or near the path of the target which the target occupied when so identified.

Estimate the angle with the sighting plane of the gun formed by the continuation of the flight of the target, and *swing* along the arc between the gun muzzle and the actual target, firing the shot as the target is passed by the muzzle.

The foregoing rules merely are repetitions of what has gone before. If the gunner experiences difficulty with his footwork, with his estimation of

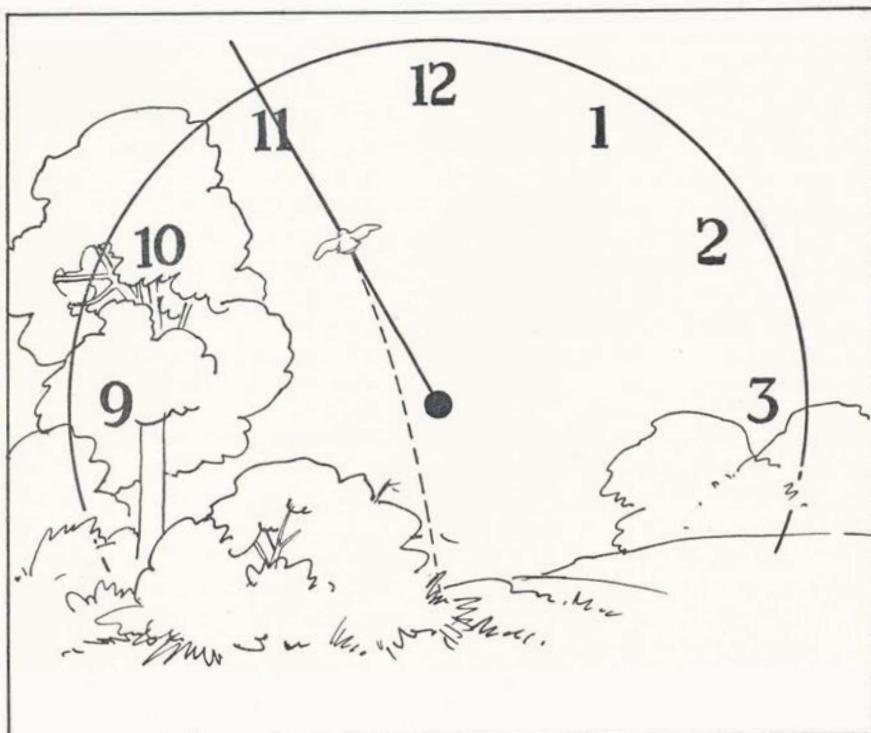


FIG. 37. The diagram illustrates an "11-o'clock shot" in upland game shooting which is exactly the opposite from the "11-o'clock shot" pictured elsewhere. Again note how the gunner becomes aware of the flushing of the bird, and quickly places his feet and aligns his gun to "cover" the point in space on the path of the target where he identified the bird as a target. The ensuing rapid swing from zero to 11 o'clock represents the final correction in the alignment of the gun necessary to bring the path of the target and the swing of the gun into almost mathematical coincidence.

the direction of the target, with the releasing of the trigger, with any single operation of the entire sequence—he should take out his pencil and paper when he gets home, sketch the situations where shots were missed, and from a study of these actual situations, evolve a remedy that will suit his case.

Remember—if any shooter merely learns to follow the target with the sighting plane of his gun, he will take a lot of game, whether he does anything else correctly or not. Certain of his errors will compensate for certain other errors, and an occasional quail, grouse or pheasant will come to bag. It will help a great deal if he learns to keep his head down, if he keeps his eyes open and at universal focus, if he pulls or slaps the trigger firmly but not roughly. Right at this point, it will help a great deal to review the subjects treated in the chapter, "Applying Your Knowledge".

Suggestions given here apply particularly to the hunting of upland game birds in ordinary cover, with or without a dog. Most upland gunning is accomplished without the services of man's best friend—and the shooting is just so much harder because the game must be located in air after it has flushed, rather than located as to general whereabouts before it takes wing. But whether a dog is used or not, the upland gunner should bring all his shrewdness into play in the way he quarters his ground, particularly in the matter of approaching shots which he may suspect will spring from the next corn row or the nearest hillock.

Most game birds, when flushed, make for the nearest heavy protective cover with which they are familiar—cover which lies on their own covey range, in the case of quail, or which offers particularly attractive shelter, in the case of grouse. Experience will teach the gunner that quail in the open should always be flushed *toward* the nearest heavy cover, rather than to attempt to drive the game farther out into the open. The result of such amateurish tactics will be an immediate zooming of the birds back over the gunner's head—they'll go to the woods anyway, so it's better to have two straightaway shots than only one at a target curving back over the peak of your cap.

In hunting any game bird in the open fields or in semi-wooded territory, the hunter should cut up his ground so as to work parallel with the edge of the nearest heavy cover—not back and forth toward it and away from it. This system will result in almost 100 per cent quartering shots as the birds break for cover—not 50 per cent straightaways and 50 per cent overheads, which will be about the normal percentage if the ground is not worked properly.

These hints are given with only one object in view—to help the shooter in so placing himself that he can make every shot count. Game that offers no worse than a right-angle shot offers a fair chance to the shooter. Towering, gyrating birds do not offer a fair chance to apply either the "swinging past" or the "pointing out" methods of gun pointing. They require down-right snap-shooting—and you have worked out the chances against scoring a hit under this system. Yet there is a real place for snap-shooting in the bag of tricks of the real hunter—particularly the grouse hunter. It will sometimes grass a bird that otherwise would have escaped. The really expert gunner must be able to apply any one of the three methods, instantly, before he has earned the right to wear a feather in his cap.

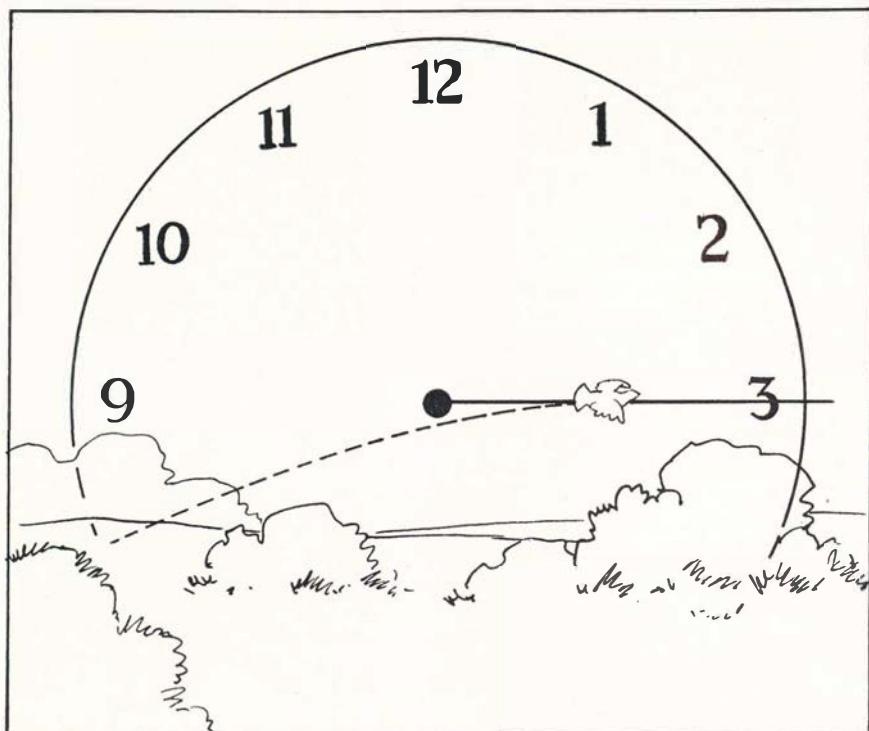


FIG. 38. Many gunners believe the extreme right-angle shot shown in the above diagram to be the hardest in upland game shooting, particularly where the shooter has to contend with intervening trees and other obstacles. The shot illustrated here is a typical "3-o'clock shot" occasioned when a bird flushes to the left of the gunner and drives rapidly across his front. As in crossing shots at Skeet and other gun games, the gunner must identify the target, place his feet and mount his gun to "cover" a point on or near the path of the target, from which the gun swing can be accelerated to overtake the flying target from the rear. Actually gun alignment for the type of shot pictured here is easier than for shots nearer the top of the clock dial, since the actual elevation of the target can be kept under observation throughout the entire swing indicated above from zero to 3 o'clock.

Contrary to previous practice in the compilation of this booklet, the question of a gun, ammunition and other equipment for upland game shooting has been relegated to the background in the discussion of the subject. The reason for this seeming reversal of form is the sincere hope that the shooter will have made up his mind, ere this, that it is the man behind the gun, and not the gun itself, that really brings upland game to bag.

Modern firearms, even the inexpensive kind, are so efficient that any gun, with smokeless shot shells, will kill plenty of game if the hunter takes his shots properly. On the other hand, there is that growing tendency on the part of the American sportsman to take pride in the tools of his hobby, and his own technique with those tools. This tendency is responsible for the increasing popularity of small-gauge guns, particularly the light 16's and 20's, for upland game shooting. Even hardy old grouse and pheasants will succumb readily to a full ounce of chilled 6's from a light 20-gauge—and these slim, beautiful little weapons are a joy to carry in comparison to the greater weight of the old American standard, the 12-gauge.

Actually, hunting conditions in your section of the country should dictate the choice of a gun for upland shooting. If you will do any gunning for grouse in heavy cover; if you intend to shoot pheasants in the Great Plains area, or quail in the timbered Ozarks, then indeed your field gun may well be a 12-gauge, preferably a double with its choice of one open and one tight barrel. The choice of a 12-gauge is particularly happy if you intend to hunt waterfowl with the same gun. If you are just embarking upon a shooting career, by all means let your dealer or some trade representative advise you.

Your choice of clothing, shoes and other equipment will have a great deal to do with your enjoyment of upland gunning. By all means avoid tightly-laced knee boots, breeches which bind the knees, and great, stiff hunting coats that bind your arms and catch on all the twigs and wire fences in your immediate vicinity. Adopt short, easy boots; wool trousers that will resist briars and yet not bind the knees; and a wool shirt to suit your climate, topping off with a combination game pocket and shell belt, or a light hunting coat that will conform to your body and not bind the arms.

Upland game shooting is not only one of the finest sports on earth—it is the heritage of the true American. It should be enjoyed leisurely, and not ridden like a wooden hobby. When you have made of it a pastime of really controlled relaxation, then indeed you will have achieved the goal of every true sportsman who aspires to honest enjoyment of the better things of life.

## PART II—WATERFOWL

Waterfowl shooting is as truly American in character as the Stars and Stripes, Tin-Pan Alley and Hollywood. Perhaps it *was* practiced in far countries long before William Penn bartered with the Indians. But nowhere in the world is waterfowl shooting as typical of the wide, healthful spaces of the earth as it is in the United States of America. It belongs, in truth, to that "Land of Room Enough" which bestirred a song in the heart of the poet. It smacks of the crisp days of autumn and the crackling leaves; of the pungent odor of smokeless powder; of the dying wind at the end of the graying day. It just sorta gets under a feller's hide, if you know what I mean.

And, say—as a shooting sport it recognizes no betters. It takes slick gun pointing to fold up an old mallard drake high up above the timber in the Illinois River bottoms, or a wily honker on the sandbars of the lower Mississippi. It spells fast work for the jump-shooter in the rice fields of the North country, and hard holding for the boys blasting at sea ducks off our several rock-bound coasts.

Everything that has been said of high tower shooting applies to the technique of bringing waterfowl to bag. This is the time to review that part of the text in "Single Trap Gun Games", referring particularly to tower shooting. Then, in the privacy of your own room, you can lean back your head—or lie on the bed, which is more comfortable and less wearing—and visualize vertical clocks all over the ceiling. That is where most of your vertical clocks will be in waterfowl shooting—high up above the trees, or at least far off to one side and very high up, and getting higher all the time.

One may as well be flippant about his misses in the beginning of his read-

ing as in the middle of his experience. For example, there was that old mallard drake down in the Illinois River country who refused to permit the vertical clock system to work—and who succumbed in the end only to his own foolishness.

The wind was in the left front, so the old drake decoyed from the right rear. The gunner stood up and yelled "Shoo!" in the approved manner, and the old drake put the blower on and started to climb. There was no limitation on the number of shots in those days, and the gunner chose his vertical clock zero, swung through the arc and pulled the trigger, with no thought of the four shells remaining in his gun.

The big mallard, with neck outstretched, kept boring into the wind toward the left front. Another estimate of the clock zero, another swing, another miss. Then another, and another. Finally, with one shell remaining in his gun, the gunner took the stock from his shoulder and looked at the climbing duck in outright astonishment. Eventually, he poked his gun straight up, took a quick snap shot—and the old campaigner folded his wings and came down smack.

In reality, instead of boring into the wind toward the left front, the duck had set his tail elevators in reverse, and was flying backwards with the wind! If the gunner had held his head down and estimated the angle of his swing along the sighting plane, he would have detected the crawfish motion on the part of his quarry. But he was in too much of a hurry. He merely assumed that since the duck's head was pointing out to the left front, it was a 10-o'clock shot—and the duck actually was flying toward 12:30.

This was a lesson to the red-faced gunner who experienced a worse deflation than the game he brought to bag. It may well be a lesson—in advance—to those of you who read this book. The moral to be deduced is simply this:

There is *always* time, in waterfowl shooting, to line up the sighting plane of the gun on the point in space where you reached the decision to take the shot. From this definite alignment, the arc of the swing is *always* in full view. There is no estimation, as in the case of upland game shooting, because the larger target at longer range seems to move more slowly. Using the "pointing out" method, the positive alignment of the sighting plane can be moved into its proper position with respect to the target.

You will miss many ducks through failure to estimate the range accurately, or your inability to hold just so much ahead and so much over. You will lose many more through your failure to make up your mind quickly enough to take the shot. You will have a tendency to "face the shot" at the closest point of approach of the flying target, with the result that before you can execute the necessary swing to cover the bird, the quarry has slipped on over your head, or off to one side behind some willows or other protective cover.

But, remember, there is *always* time to go through the full sequence of accurate gun pointing if you get on your target early enough. What does it matter if the bird sees you, and towers straight up, or turns back, or slips off to the side? Any such maneuver on his part will merely serve to

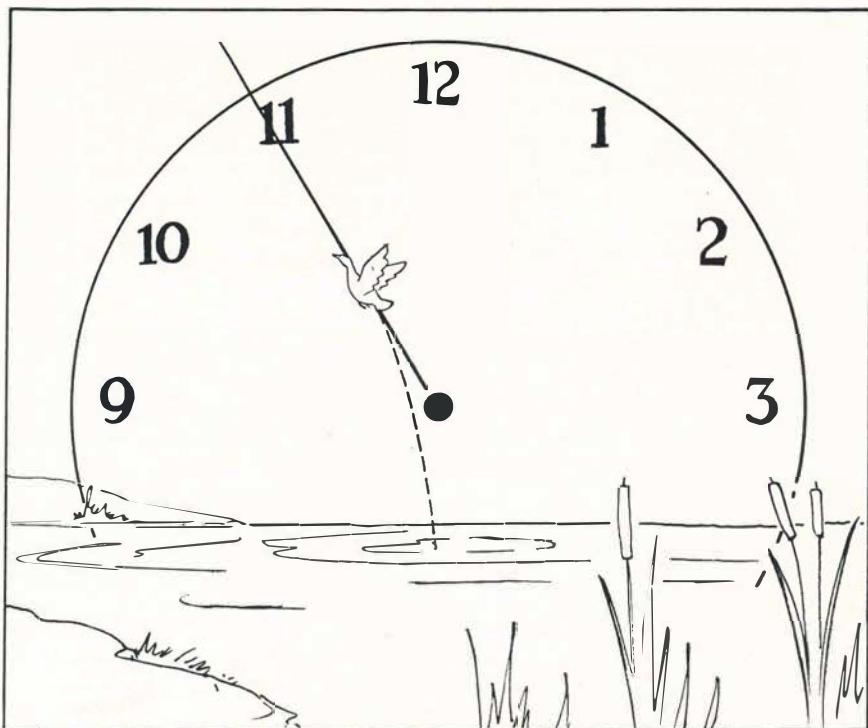


FIG. 39. Wildfowl shooting offers wide opportunities for the application of the vertical clock system, since the targets will approach from all angles of the horizon, at varying heights, or perhaps even start down from above the gunner. The diagram above illustrates a common situation in duck shooting where the target starts almost straight upward and then veers off slightly in its attempt to put more distance between its tail feathers and the gunner's shotgun. Note that the zero of the clock face is a point on or near the path of the jumping duck from which the direction of the gun swing can be corrected to coincide with the change of direction attempted by the duck. Thus, the shot becomes a distinct swing from the zero point, where the gunner faced the shot, to 11 o'clock on the imaginary clock face.

define the arc of your gun swing more positively. At least, you will be able to see the tip of your sighting plane and the target at the same time, which is more than you can do if you let the bird work in over you and almost cause you to break your back as you swing up—and up—and up.

Just as in tower shooting, you should begin at the outset to estimate *double* the amount of vertical and forward allowance you think is necessary to score a clean kill. This is particularly true of ducks dropping into decoys with their wings set, or of birds going away from you, far overhead. It will always be easier to estimate the proper allowances for high incomers than for high outgoers—and those going away, at an angle, are the hardest of all. The easiest shots are those at birds hovering over the decoys, or otherwise changing direction, and standing practically still in the air. You will not get many of this kind, because the game will see you when you arise from the blind, and try to do something about getting away from there.

Also, all waterfowl, particularly large ducks and geese, seem to be closer than they really are. This is merely another reason for exaggerating your allowances. It should also serve as a warning to you not to shoot unless

the game is surely in range, since you will want to score clean, sure kills, and not cripple birds needlessly through your own inefficiency. Because of the vagaries of different lighting conditions, there is no sure rule for determining whether game actually is in range. You should learn to identify the various species, and determine by the size of the birds whether they are fair game—or unfair, from every sporting standpoint.

Your gun for waterfowl should be the heaviest you can shoot with comfort—both from the standpoint of ease of handling, and with respect to the normal recoil of the arm. It is better to shoot at least a 12-gauge with long-range loads of maximum power and pressure for your particular gun. Large shot will serve you best—perhaps 5's and 6's over decoys, and 4's for flight and pass shooting. A modern 12-gauge gun of at least medium weight, fully choke bored, will kill ducks consistently up to 60 yards when long-range shells are used. The full effective range of an improved modified barrel will be about five yards less.

Very light 12-gauge guns and the 20's and 16's will bag many ducks under ideal conditions. Generally speaking, the 20-gauge with maximum loads is effective to about 50 yards, and the 16-gauge to 55 yards. If you will make up your mind *never* to shoot at ducks beyond the proper range for your light gun, you can have a lot of fun shooting ducks with a 20 or a 16. Or, you may go in the other direction, and use a very heavy gun with Magnum loads, thereby insuring adequate power for all shots up to really extreme ranges.

Whatever gun you choose for your waterfowl shooting, remember that the gun is just as effective, within its range limitations, as the gunner pointing it. The gun and ammunition will do the job if your hold is right. Concentrate on taking your shots at exactly the right distance to require the birds to maneuver out in front of you—not overhead or to one side. Play the wind for all it is worth, particularly with birds that are not alarmed. They will almost invariably come in against the wind—but just as often they will go out with it when they find out it is healthier elsewhere. Changes in direction on the part of the game need not disconcert you if you take the shot at the proper time, and then swing crisply on to the target.

As in upland shooting, you should choose clothing that will not hamper your movements in handling the gun. Much wildfowling is done in bitter weather, and it is much better to wear a couple of suits of light wool "undies" than to bundle yourself up in a great cocoon of outer clothing. You should wear wool right out to the weather, except in case of rain or snow, when a slip-on raincoat of dead green or sedge color will shed moisture without binding. It must be loose enough to permit freedom of movement inside it, since more often than not you will do a lot of twisting and turning in your seat.

As a final injunction, don't let them see the whites of your eyes or the glint of your glasses. Don't wiggle. Force yourself to relax. Control your nerves—don't let your nerves control you. Wait calmly, if not patiently, until they sweep into range, then rise up and make that vertical clock tick for you as it never ticked before!

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## **TO ALL SPORTSMEN**

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We urge all Shooters to join some National, Local or State Sportsmen's Club and to assist State and National Legislators to pass laws beneficial to wild life and natural resources.

We recommend that for information on Trapshooting or Skeet Shooting you communicate with the National Headquarters of the respective sport at address below:

**TRAPSHOOTING—**

Amateur Trapshooting Association  
Vandalia, Ohio

**SKEET SHOOTING—**

National Skeet Shooting Association  
1600 Rhode Island Avenue  
Washington 6, D. C.

**T**HE Sporting Arms and Ammunition Manufacturers' Institute has also published "HANDBOOK ON SMALL BORE RIFLE SHOOTING" which will be of interest to Rifle Shooters. A copy may be obtained on request addressed to any one of the Institute members.

